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AN
ESSAY ON HEADACHS,

&c. &c. &c.

AN
ESSAY
ON
HEADACHS,

AND ON THEIR

CURE,

BY

WALTER VAUGHAN, M.D.

OF THE ROYAL COLLEGE OF PHYSICIANS IN LONDON.

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Num igitur aut Haruspex, aut Augur, aut Vates quis,
aut somnians melius conjecerit, aut è morbo evasurum
aegrotum, aut è Periculo Navem, aut ex Insidiis Exercitum,
quam Medicus, quam Gubernator, quam Imperator.

Cicero, de Divinatione, Lib. secund.

W. Wildash, Printer,
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TO
THE RIGHT HONOURABLE
THE
EARL OF DARNLEY,
&c. &c. &c.

MY LORD,

I humbly presume to inscribe to your Lordship the following Essay on Head-achs, in Testimony of my great Esteem and Respect; and as an acknowledgment of how much I have been delighted, and how much I have been improved at Cobham Hall, by that Example, ever shown there, of Regard to the Objects of moral Duty; the Deity, our Fellow-creatures, and ourselves.

He, however, who would do Justice to your Lordship's Character, should himself be possessed of more Merit and Distinction than I am: but I cannot suppress, that I shall ever be sensible of the Favours received from your Lordship, and shall ever retain those Sentiments of Gratitude and of Duty which become me,

YOUR LORDSHIP'S

most obliged and

most devoted

Servant,

WALTER VAUGHAN.

PREFACE.

AS the following Essay (for I give it no higher Title,) however defective, will, I apprehend, be found to contain some things new and important, I publish it, not with false humility, but with that modest ambition which conceited Sciolists only condemn, of one whose whole Life has been devoted to the Profession of Medicine, and to those Branches of Physiology (using this word in its largest signification,) which that Profession requires.

I never had such an opinion of my own abilities as to think that I could compose a complete Treatise on Headachs ; but yet I always thought that as a Physician, it was my duty to labour incessantly, lest on any sudden and uncommon occasion, a Patient committed to my care, should be lost, or should suffer through my ignorance.

As we have opportunity, let us do good unto all Men. Gal. vi. 10.

Indeed, I have known many, whose conception of things was vivid, and whose expression

was correct and luminous, who, if they had had the leisure, could have supplied what was so much wanted, and might have favoured the world with a Performance far more likely than mine to become popular, far more comprehensive than mine, and far more free from faults. Perhaps, they felt a diffidence in attempting a Task, from which the venerable Cullen had shrunk; Cullen, whose experience was guided by penetration and genius, and whose new Language and splendid Eloquence had contributed to raise the University of Edinburgh so high among the Schools of Medicine.

Cullen however has not neglected Headach; he has only omitted it in his Nosology:* and whatever motives may have deterred others from the attempt to fix on its proper place in an arrangement of Diseases, I shall not, I trust, be deemed presumptuous for an Essay, to make which I was urged by my excellent Friend, now no more, Dr. William Saunders, late Physician to Guy's Hospital, and the Founder, or, as Dr. Curry calls him, the Institutor of the Medical School there.

The Lectures of Dr. Saunders on the principles and practice of Medicine, were the first I ever heard. I became his perpetual Pupil in

* See page xxi. of the Prolegomena to the fifth Edition of his *Synopsis Nosologiae Methodicae*; and page 411 of his *Synopsis* itself.

1784. As a Lecturer, Dr. Saunders's presence of mind (*Αγχινοία*), his command over Language, and his intimate knowledge of every Branch of Medical Science rendered him pre-eminent. Always intent on securing the attention of his Pupils, he never forgot to lessen the fatigue of it, when undivided and protracted ; not by bedizen- ing his Lectures with low and flippant witticisms, but by seasoning them with such ingenious and delicate allusions as exquisitely illustrated his Doctrines, and left them indelible in the minds of his hearers. Those Sceptics who came to his Theatre, in order to debase the minds of his scholars, by leaving them no ground to believe any one thing, rather than its contrary, as if nothing is perceived, but what is in the mind which perceives it, he boldly drove back. He encouraged no prejudice against Christianity ; a Religion which recommends the Love of God and of Mankind as the Sum of all true Religion. Till his death, he continued to show a warm and lively interest for my success in life, to honour me with his correspondence, and seldom to possess a book, domestic or foreign, which he did not lend me. He sent for me to Enfield, after his retirement there. Need I say that I loved and revered him as a Father ? and shall I not say that I never think of him without feeling that all my inclination to commend, and all my talents for commendation are disproportionate to his merits ?

Ante leves ergo pascentur in aethere cervi,
Et freta destituent nudos in litore piscis :
Ante, pererratis amborum finibus, exsul
Aut Ararim Parthus bibet, aut Germania Tigrim,
Quam nostro illius labatur pectore vultus.

To detain the Reader no longer, who may be impatient to know what he is to expect from me, I would tell him that I have endeavoured—

1. To remove all ambiguity from the term Headach, by pointing out what is essential to the disease signified by that term, and what is not essential :

2. To show that there is a distinction of Headachs in the nature of things; and accordingly to make a division of them so perfect as to comprehend them all; that such errors of judgment as have too often arisen from the confounding of mere pains in the Head with Headachs, and different Headachs one with another, may in future be avoided : and

3. To give an enumeration of the most common occasions, on which Headachs take place ; so as to trace out those principles, resting not on hypotheses, but on facts, upon which, as *data*, all reasoning concerning the nature and cure of any Headach should proceed.

How I shall have succeeded, the Reader will judge : and all must be desirous that it should cease to be repeated, that “ the same means for
“ no obvious reason have had such opposite
“ effects in relieving and in exasperating similar
“ pains in the Head, that it must be left for

“ more enlightened posterity to lay down a more certain method of cure.”* But I shall not reflect on my time as mis-spent, if I shall have fortunately shown the road to others of greater ability, and shall myself have advanced one step only in it, towards that truth which, like the Sun, has enlightened human intelligence throughout all ages.

The Introduction, certainly little more than an analysis of Sauvages’ account of Headachs, I should have omitted, if some friends, not of the profession, who had neither heard before of Sauvages, nor were aware of the imperfect state of our knowledge of Headachs, had not resisted the omission: for the sake of those friends, and of others, who have not studied Medicine as a Science, I have also entered occasionally into such digressions, and such verbal criticisms, as the Medical Reader must see, could not have been intended for him.

To be lucid and succinct, to connect pathology with practice, to steer safely between discordant doctrines, and to be settled and decisive in my own opinions without dogmatism, I have constantly endeavoured. I have given no cases, as some have done, no doubt, to display their quicker discernment in marking the peculiar circumstances of them, and their superior skill and felicity in adapting remedies to them. I have given no *formulae* of remedies, convinced that

* Haberdan.

it was unnecessary to do so. In a word, I could never be persuaded, that the magnitude of a book is a recommendation of it;* and I have often lamented that the second edition of a book was inferior to the first, in proportion as it was enlarged by the addition of such cases as may never occur again; of such explanatory matter as so dilated the original, as to render it, if not more obscure, at least less impressive; or of such ornaments as Editors and Printers know well how to apply to even the most putid and senseless productions, that they may glide easily into popular favour.

* *Quin etiam Voluminibus ipsis auctoritatem quandam et Pulchritudinem adjicit magnitudo. Plin. Epist. Lib. i. Ep. 20.*

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CHAPTER I.

INTRODUCTION.

A REVIEW OF SAUVAGES ON HEADACHS.

HE, who wishes to know what any disease is, or, what Physicians mean by the name they give to any disease, will probably expect to find it in the writings of those Nosologists, who, professing to have imitated the procedure of Botanists, have reduced diseases to a few classes, orders, genera, species, and varieties, so that there should no longer be any difficulty in ascertaining the precise extension and comprehension of the scientific term set for any one of them. Who, if he consider, that no part of the human body is so subject to pain as the head; that even the slightest pain in it may increase and be followed by apoplexy, by epilepsy, by insanity, &c.; and that headach, as a symptom, may occur in almost every disease, does not wish to know what headach, as a disease, is? But Cullen, the greatest Nosologist, of whom this or any other Country can boast, has intentionally omitted Headach in his arrangement of diseases, and has even left it doubtful, whether he was able to form such a character of it, as to entitle it to a

place there. Ought I therefore not to endeavour to supply his omission, lest some one should accuse me of presumption? It is gratifying to me, that Cullen has not neglected Headach: and although one of his most humble scholars, yet I will not affect a diffidence, which I do not feel: for it has always been my wish, that one adequate to the task would perform it, and my inclination to attempt it myself, rather than that it should be left undone.

But for what is not to be found in Cullen, it is not improbable that the Reader may search in Sauvages. I purpose, therefore, by way of Introduction to this Essay, to make a slight review of that part of Sauvages' Nosology, which relates to my subject: and to this I am led by no other motive, than that the reader may be somewhat acquainted with what others have written on Headach, before he appreciates the merits of that which will, I hope, be found more consistent with the sounder doctrines of the present day.

It may not be amiss, however, even in doing this to premise, that, no disease is so simple as to consist of only one symptom: for although as Sauvages says,* in defining a disease, it may be sufficient to mention one or two symptoms only, yet it is certain that there are many at the same time.

Headachs are, he says, pains in any part of the head, as the skull, the eyes, the ears, the teeth, or the jaws, without fever or convulsion, unless the pains be considered as accedents to

* Prolegomena ad F. B. de Sauvages Nosologiam Methodicam, &c. a C. F. Daniel, Lipsiæ 1790 editam. Tome i, p. 72.

diseases, and not, as we say, essential diseases *
The genera of this order are the following: viz.

1. Cephalalgia, *Mal de Tête*, a heavy pain of the head.
2. Cephalaea, *Cephalée*, a periodical, chronic, tensive pain of the head.
3. Hemicrania, *Migraine*, a pain of either side of the forehead.
4. Ophthalmia, *Ophthalmie*, a pain of the eye, with redness, and intolerance of light.
5. Otagia, *Douleur d' Oreille*, a pain of the ear.
6. Odontalgia, *Mal de Dents* a pain of the jaws, or teeth.

Of the genus *Cephalalgia*, his species are thirteen: viz.

Headach from	{	Plethora.
		Menstruation.
		Hæmorrhöis, Costiveness, &c.
		Disorder of the Stomach.
		the hot Fit of Fevers.
		Pulsation of the Temporal Arteries.
		the same cause as Intermittents, and, like
		them, returning every day, or every other
		day.
		Pregnancy.
		Inflammation caused by Blows on the Head,
		Wounds, Fractures, &c.
		Catarrh.
		the South Wind, & perhaps from Insolation.
		the Hysteric Disease.
		the Vapour of Lead, and of other Metals.

* Ordo secundus. Dolores Capitis. Tomus iv. p. 69.

I have taken the liberty of rendering the clause, *nisi Dolores pro horum morborum accidentibus habeantur*, as if Sauvages had written, not *accidentibus* from *accido*, but *accedentibus* from *accēdo*, because I do not believe, that any thing occurs by chance.

All these species agree in this, that there is a heaviness of the head, at the forehead especially, or a disagreeable sensation of it, as if it were distended, turgid, and loaded with a weight. The pulse is less frequent than in health : * and there is a difficulty of thinking, of reasoning distinctly, and of recollecting.

If the seat of this disease could be known by accurate signs, it might be distinguished by its seat from *Cephalaea* and *Hemicrania*; for *Cephalaea*, as it is accompanied with a tensive and vivid pain, should belong to membranes, without or within the skull; and *Hemicrania* to the frontal sinuses, or parts receiving nerves from the little sympathetic.

Of the genus *Cephalaea* his species are seven : viz.

Headach from	{	Latent venereal disease.
		Scurvy, repelled Itch, and any acrimony of the humours
		Retrocedent Gout
		A latent Intermittent
		Desires, passions, cares, &c.
		A retention of the Plica Polonica
	{	Serous effusion within the skull

All these species agree in this, that the pain, which is acute and of obstinate continuance

* In *Dolore dirissimo Pulsus exilior, debilior, rarior*: *Respiratio similes Pulsui patitur mutationes, &c.* Sauvages, Nos. Method. *Doloris Theoria*, cl. VII.

Semper observavi, in gravibus Capitis Doloribus, Pulsum rarescere. Sauvages Nos. Method.

Medical Transactions of the College of Physicians in London. VOL. ii , P. 32.

occupies the whole head, and returns with violence on slight occasions, Cephalaea differs in degree only, not in kind, from Cephalalgia; so that it would perhaps be better to refer them both to one genus. The moderns and followers of Stahl, distinguish Cephalaea by the pain in it being not heavy, but tensive, and spastic.

Of the genus *Hemicrania* his species are ten: viz.

Pain of either half of the Head, from	{	Inflammation of the Eye.
		A carious tooth.
		Obstruction of one of the frontal sinuses.
		A Cold.
		Hæmorrhöis.
		The Hysteric disease.
		Pus filling the frontal and maxillary sinuses,
		Insects in the frontal sinuses.
		A stone in one of the Kidneys.
		The Moon, following its phases every eighth day.

Of this Headach, says Sauvages, the principal symptom is a vehement and often a periodical pain in either side of the head, especially at the temple, the forehead, and near the eye. It differs from Cephalaea in this, that its seat is not in the Encephalon, nor in that part of the skull, which immediately covers the brain, but in the frontal sinuses, and at the orbit, so that either the eye-ball is violently affected with a retraction and lachrymation, or the patient has generally an obstruction of the nostril, a coryza, or a similar disorder of the frontal sinuses, or the affection is confined to a spot, which may be covered with

a nail, or with the thumb, which is not the case in *Cephalaea*. He says, in another place that *Hemicrania* is seated in the frontal sinuses, or places receiving nerves from the *sympatheticus parvus*.

Such is the sketch of Sauvages' *Nosology*, as it relates to Headachs, which I thought it necessary to lay before the reader, without interposing my own judgment. That it will be unsatisfactory to him, I am well aware: but I have no doubt, that the whole, of which it is an abridgement, has been equally as unsatisfactory to those who have perused it; for such an illogical arrangement, such a mixture of facts and hypothesis, and such a confusion of symptoms with genera, species and varieties are, I believe, scarcely to be found in any other author, capable of marking the distinguishing peculiarities of objects, and of performing generalization and abstraction. I have, however, endeavoured to be faithful in representing the statements of this learned Physician; and I shall now offer a few remarks, for which perhaps I may not again find so proper a place.

The first is, that Sauvages differs from the ancient Physicians, and from the modern, in referring pains of the face to the head: he differs from the ancient Physicians; for Celsus who lived at Rome in perhaps the age of Augustus, when he is about to treat of the diseases of particular parts, says that he shall begin with the head, by which he means that part which is covered with the hairy scalp; and that of pain of the eyes, of the ears, of the teeth, and of any similar pain, if there be any, he shall treat at

another time.* Sauvages differs from the modern Physicians; and not only from them, but also from Anatomists, Naturalists, Painters, Sculptors, &c. for although these may all, in common conversation, give such latitude to the word head, as to comprehend in it the face, yet they always distinguish the head from the face, when they would direct attention to the one of them, and not to the other. And, if I say, that I have a pain in my head, every peasant as well as every Physician supposes me to mean by the word head, that which Celsus defines it: but if I say that I have a pain in my head, when the pain is in one of my eyes only, or of my ears, or in a tooth, neither Peasant nor Physician understands me, or allows that I speak the truth.

The distinction between the head and the face is indeed the more necessary, because as of all animals, man has the largest head with the smallest face, so the more this proportion differs in other animals, mammalia, birds, reptiles, and fishes, the more they are stupid and ferocious. Every one knows that children have a large head, and that they become less beautiful, as the relative magnitude of the head and face becomes altered. Again, in all the pictures and statues of great men, of heroes, and more especially of gods, the ancients represented the head as larger than it is naturally, in proportion to the face; the facial line of Camper—a line passing along the

* Caput:—sub quo Nomine nunc significo eam Partem, quae Capillitio tegitur: nam Oculorum, Aurium, Dentium Dolor, et, si quis similis est, alias erit explicandus. De Medicina. Lib. iv, Cap. 2.

edge of the upper incisores teeth, and the most prominent part of the forehead—forming a larger angle with the basilar line—a line bisecting longitudinally a plane passing through the passages of the external ears and the inferior edge of the anterior opening of the nostrils. Thus, in the Ourang Outang this angle is only 65° ; in the adult negro 70° ; in the adult European 85° ; in the infant European 90° ; in the pictures and statues of Heroes 90° ; and in those of Gods 100° . * Lastly, if the human brain be not larger, in proportion to the rest of the body, as Aristotle asserts it to be, than that of all other animals, some mammalia and some birds excepted, yet this seems to be certain, that the human adult has the largest brain of all animals in proportion to the rest of his nervous system†: for in all other warm-blooded animals, as their spinal marrow is larger, and as their nervous ganglia are larger, and more numerous their brain is smaller. It has, however, been noticed by Professor Tiedemann, that the spinal marrow is much larger in proportion to the brain during the early months of uterine life.

Another remark is, that Sauvages by comprehending in one genus Cephalalgia and Cephalaea and by maintaining that Hemicrania is neither seated in the Encephalon, nor in any part of the skull which immediately covers the brain,‡ makes only one kind of headach.

* Cuvier Leçons d' Anatomie Comparée. Tome ii.

† Soëmmering, Corporis hum. Fabrica. Tome iv, § 92.

‡ Differt a Cephalaea ex eo, quod ejus sedes non est in Encephalo nec in Calvariæ Parte, quæ immediate Cerebrum tegit, sed in Sinubus Frontalibus, &c. Nos. Method.

A third remark is, that if the pain of Cephalaea, differ in degree only from that in Cephalalgia, it should in both depend upon the same cause. This cause in Cephalalgia, Sauvages states to be an infarction of the bloodvessels in the cortical part of the brain, which, if cut, he says, is not acutely painful, but if its bloodvessels be distended and turgid, becomes thereby obscurely painful.

That Cephalaea is a less tractable headach than Cephalalgia, is sufficiently plain; but that it is a greater degree only of it, is not so: and I shall endeavour to show, that Cephalaea differs in kind from Cephalalgia. First, the assertion of Sauvages, that the pain in Cephalaea is tensive, spastic, and vivid, for he gives all these epithets to that pain, is not supported by the authority of either Celsus or Aretaeus: the former applies no other epithet to the pain in Cephalaea, when fully formed than intolerable;* and the latter, says that the attack of diseases of the head is tolerable, because the pain is slight.† Nay Aretaeus, who lived in perhaps the reign of Nero, cautions us against a disregarding of pains of the head, while they are yet slight, and may sometimes be cured. Secondly, is it likely that a Cephalalgia ever becomes a Cephalaea; that a slight degree of infarction of the vessels of the cortical portion of the brain causes a sensation of heaviness in the head, and a great degree of it a tensive, spastic, and vivid pain? And lastly, as to the pain occupying

* Intolerabilis.

† ευπαθής, μικρὸς, σμικρὸς.

The Reader may consult pages 27 and 114 of the edition, of Aretaeus, edited at Leyden by H. Boerhaave, in 1735.

the whole head in Cephalaea, but only part of it, as the forehead, in Cephalalgia, I appeal to the common experience of medical men, whether it do so.

Is it not a gratuitous assumption then, that an over-distended and turgid state of the bloodvessels in the cortical part of the brain gives rise to Cephalalgia and to Cephalaea? Will any one contend, that the pressure of over-distended bloodvessels gives rise to that intense pain in the head, uncommon giddiness, and sudden loss of strength, which are the first complaints of those, who are seized with the plague? * Will any one contend, that the pressure of distended bloodvessels, gives rise to that pain in the head with somnolence, lassitude, despondency, and faintness, which ushers in malignant fevers, and of which many complain, who escape those fevers, when they prevail? Although a pain in the head, arising in the course of any fever, may require blood-letting, yet in that pain with giddiness which precedes it, there is not yet any alteration of the pulse, as the most acute and cautious have remarked, nor is the pain diminished, but increased, by opening the jugular vein and letting blood flow down from the head. †

* Thucydides. Hippocrates. Lucretius, de Rerum Natura. Russel's account of the Plague at Aleppo, page 230.

† Dignissimum est notatu, quod Principio horum morborum tota Tragoedia in genere nervoso agitur, antequam sanguinis massam turbare pulsus indicet, vel aliquam magnam mutationem pati. Quod quidem in variolis, morbillis, febribus, cujuscumque generis quotidie conspicitur, ubi aeger primo momento dolore capitis corripitur solet et levi quadam Vertigine,

I could never believe, that there is too much blood in the brain in that pain of the head in chlorotic girls, who have scarcely any red particles in their blood, or of those women, (I know that thin persons have most blood,) whose bodies are thin, whose muscles are flaccid, whose whole complement of blood is daily decreasing, and whose pain in the head preceding menstruation abates or ceases as soon as this begins, and ceases sometimes as entirely when the discharge has not exceeded a few drops, as when by the fifth or sixth day, it may have amounted to several ounces. Indeed the quantity of blood in the body of a female has less connection with this secretion than some seem to imagine; for the most plethoric do not menstruate more regularly nor more plentifully than those who are not at all so: and venesection before menstruation neither protracts it a day, nor during menstruation, ever checks it.* Professor Hoffman maintains, that the menstrea may be suppressed by consequence of a plethora; and that venesection before &c. Ric. Morton Pyretologia. App. Curat. Morbor, universal. page 12.

Morbum saepe incassum frequenti Venæ Sectione in Jugulari vel ejus Ramulis celebrata cicurare tentavi. Id. Exercit. i, cap. iv, page 32. Edit. Geneva, 1727.

See Sydenham, Opera omnia. Edit. Lugd. Batav. 1726. page 307.

Chalmer's on the Diseases of South Carolina, page 150.

Lieutaud, Hist. Anat. Medic. page 111, obs. 55.

* The system of the Womb, &c. by Thomas Simson, Chandos Professor of Medicine and Anatomy in the University of St. Andrew, page 9.

An Introduction to the Practice of Midwifery, by Thomas Denman, M. D. vol. i, page 165.

their appearance promotes them.* There is, perhaps, as much blood in the head of emaciated persons as of others, owing to the importance of the cerebral functions ; but I can see no reason, that there should be more, although some assert it.

I could never believe, that there is a greater quantity of blood than usual in the head of those, who have ever so long laboured at times under a Headach, and in whose head some morbid change of structure is going on, or some tumour is slowly forming.

I could never feel myself convinced by the experiments of Dr. Seeds and others, that there is too much blood in the head in that Headach with occasional giddiness, dilated pupils, muscae volitantes, flushed cheeks, &c. which follows sudden and considerable losses of blood, uterine Hæmorrhages especially, nor do I think it likely that such experiments on healthy dogs will ever throw light on the diseases of the human body,

There certainly was not an extraordinary proportion of blood in the head of those workmen of a gallery in the coal mine at Anzain, at Frenes, and at Vieux Condé near Valenciennes, who were tormented with a most violent Headach : for Professor Hallé attests, that their brain was found to be white, and the cortical portion of it, which consists chiefly of bloodvessels, so pale as to be hardly distinguished from the medullary portion : no blood was detected in their aorta, or in any of the sinuses of their dura mater.†

* Marherr, Praelectiones in H. Boerhaave, Inst. Med. DCLXV.

† Edinburgh Medical and Surgical Journal, vol. iii, p. 170. Lieutaud, Synopsis univ. Praxeos Medicæ, &c. p. 3.

I shall make no remarks on the several species of Headach imagined by Sauvages: but as he places the Ecplexis of Hippocrates as if it were a Headach, and consequently depended upon overdistention of the bloodvessels in the cortical part of the brain, I cannot properly pass it over in silence; and I am the less disposed to do so, because I cannot recollect any writer who, before Sauvages, had taken such a view of it.

Ecplexis is said by Hippocrates to be the immediate consequence of a blow on the head:* and all his interpreters agree that the literal meaning of the word Ecplexis is stupidity, or a diminution of sensibility. The common English word corresponding with the Greek Ecplexis is Commotion or Concussion of the brain: and a person, while he has a concussion of his brain, is vulgarly said to be stunned. Now, how can a person who is stunned, and upon whom impressions call forth no sensations, have a pain in his head?

When a person has received a shock, or a blow on his head, and is stunned by it, he no sooner breathes again easily, has in some measure recovered his usual warmth, and is able to answer questions put to him in a loud voice, than he complains of a pain in his head: but pain is not in the extension of the word Ecplexis.

If the reader be startled at the number of species of Headach made by Sauvages, how much

* 'Επὶ πληγῇ ἐς τὴν κεφαλὴν, ἐκπληξίς, ἡ παραφροσύνη, κακόν. Sec. VII, 14. I. Heurnius thus latinises it:—*Plagæ in Capite acceptæ, Stupor aut Delirium si supervenerit, malum.* the word 'Εκπληξίς Foesius, in his *Oeconomia Hippocratis*, renders *Stupor, Obstupescencia*.

more must he be startled at finding that his editor, C. F. Daniel, adds thirteen to that number; and that Aretaeus makes the species to be innumerable? It is Le Clerc, who says, that Aretaeus does so; but I do not believe it: the allusion of Aretaeus is, in my opinion to the cases, or instances, or forms of Cephalalgia, in different individuals, not to a first generalization.*

Before I conclude this Introduction, as Sauvages assigns Headach to an infarction of bloodvessels, I shall speak of those signs, which are often considered singly, but oftener conjointly as denoting a greater distention of the bloodvessels of the brain, or, what is not very properly called, a determination of blood to the head: I mean a flushed countenance, a dilatation of the pupils, and an increased pulsation of the carotid, the temporal, and the facial arteries.

First, of a flushed countenance. Perhaps it is impossible to tell exactly of any person, what loss of blood would be sufficient to kill him; although it has been fairly ascertained, that a person may lose the more blood from a vein, the more slowly he loses it; and that he may lose more blood without fainting in a recumbent than in an erect position.

Haller supposes that, if a person weigh 150 pounds, his blood weighs 30 pounds; of which $\frac{1}{4}$ th is in his arteries, and $\frac{3}{4}$ ths are in his veins.†

* His words are *ιδέαι δε μυρίαί.*

† *Elementa Physiologiæ*, Tom i, page 3.

The veterinary Surgeon, Percivall, says, “supposing a man “to weigh 12st. or 168lbs. the quantity of Blood contained “in his body may be rated at 21lbs., or, 2gals. 2qts. 1pt.’

This is probably an approximation to the truth : but what can we suppose to be the quantity of blood circulating through the vessels of the head, when Malpighi thinks that $\frac{1}{3}$ rd, Haller that $\frac{1}{5}$ th, Monro that $\frac{1}{10}$ th and Magendie that $\frac{1}{8}$ th, of all the blood sent out of the left ventricle of the heart is carried to the brain by the two internal carotid, and the two vertebral arteries? These are subjects which admit dispute : but it is clear from the angles of the carotid and vertebral arteries before they enter the cranium ; from their anastomosing after they have entered it, so as to form the circle of Willis, between the base of the brain and the cranium ; and from their minuteness as they pass out of the pia mater into the cortical portion of the brain ;—it is clear, I think, that with whatever force the blood is propelled into the aorta by the contraction of the left ventricle of the heart, the shock which is then felt in all its branches in other parts of the body is scarcely sensible at the circle of Willis : and, therefore, that the arteries of the brain must have an inherent power of their own, by which they carry on the circulation of the blood. No other organ is of such delicate texture as the brain, and therefore needs to be so fearfully and wonderfully defended against the sudden rush of blood into it : for other organs are penetrated by large arterial trunks, which divide and subdivide within those organs.

Sauvages, who attributes Headach to a dis-

again, “we may reckon the loss of a pint from a man to be
 “equivalent to that of a gallon from a horse, or, 4oz. from a
 “dog See his “Series of Elementary Lectures on the vete-
 “rinary Art, &c.

tension of the bloodvessels in the cortical part of the brain, does not say, that apoplexy is always accompanied with a flushed and tumid countenance: nay, he asserts that the face in headach is not always of a blood-red colour, or as if it contained any blood. And very credible authors allow that when both the brain and its membranes have been found loaded with blood, in apoplexy, the face had sometimes been pale.

In short the signs of distension of bloodvessels, within the cranium, are not those of Headach: in apoplexy according to Dr. Cook, “the animal
“functions are suspended, while the vital and na-
“tural functions continue: respiration being ge-
“nerally laborious, and frequently attended with
“stertor”? but in Headach there is more or less quickness of sensation and of perception, but none of the operations of the mind are performed without an increase of pain in the head: the patient is more or less watchful; and his respiration corresponds, as in health, with his pulse. Quick sensation is not peculiar to Headach: an acuteness of vision, and of all the senses attends persons dying of inanition, labouring of hydrophobia, and suffering from some poisons: nay, and it accompanies pain in several textures of the body, in skin, in muscle, and in celular texture more especially. There is this difference however, between the pain in headach (when the stomach does not sympathise with the brain so as to produce sickness), and the pain in parts which is not attended with sickness, as pain in the stomach, the intestines, the testes, the uterus is always, and pain in tendon, ligament, and bone

is often, that the operations of the mind increase the pain of headach, so that the patient lies with his eyes closed, prefers darkness to light, avoids odours, and noises, and lies motionless, so that he seems to some as if asleep or stupid;* whereas the operations of the mind diminish the pain of skin, of muscle, and of cellular tissue, so that the patient is roused by it to both mental and bodily exertion, and vociferates incessantly, and turns and even throws himself out of one position into another; or perhaps even forgets his pain, in his earnestness to account for some phenomenon, or to state to others the grounds of some decision, in doing which, if advanced in years, his memory, although before on the decline, seems to be revived, and his conception to be more quick than usual. Cases are on record of patients, who, during a surgical operation suppressed the language of pain, but died for having done it.

It may be a question, whether apoplexy ever occur, unless some of the arteries within the cranium be organically diseased, and all of them have a tendency to become so. The whole of the arterial system was found disposed to aneurism, and in many places changed in its structure, in a man, who had an aneurism of the carotid artery. Indeed, it seems to me, that a diseased state of the blood vessels precedes the congestion of blood, and is more essential than it to apoplexy. As to that compression of the brain, which sometimes

* Burserius, *Instit. Med. Prac.* vol. III, page 13. But Lommius says, *In Dolore Capitis omni, eo Periculum vertitur, quia continentur excruciat, et Somnum tollit.* *Obs. Med. Lib. ii.*

takes place, by consequence of the return of blood to the heart being prevented by compression of the jugular veins, &c. although it produces a suspension of the animal functions, and, if continued long, death ; yet it is so far from producing apoplexy, properly speaking, that, if I mistake not, that condition which it does produce, bears no more relation to apoplexy, than the condition of the sanguiferous system produced by violent exercise, bears to fever. When a person dies from being hung by the neck, he does not die of apoplexy ; but he dies as if the two pneumogastric nerves had been divided. He cannot inspire.

To return from this digression, a flushed countenance can no more be a sign that an unusual quantity of blood is present in the brain, than the circumscribed spot of bright red in the cheeks of consumptive persons, which is attended with a rapid diminution of the quantity of blood in their bodies. Besides, when persons blush, nobody maintains, that the sudden rush of blood into the arterial capillaries of the face is consequent to an extraordinary fullness of the small arteries supplying them. It has at times come into my mind, that in certain passions and emotions, something analagous to blushing takes place in the mucous membrane lining the pylorus, the hepatic ducts, the kidneys, the ureters, the urethra, the ducts of the prostate gland, the fallopian tubes, &c. and that the foundation of an irritation totally distinct from active inflammation is occasionally laid there by a mere act of the mind. Bichât thinks it probable, that there are vessels in the capillary system, which are habitually empty, and intended

to receive fluids under certain circumstances only. The ureters, the excretory ducts in some cases, and the lacteals in the intervals of digestion, he says, contain nothing; and he adds, that it is difficult to conceive the rapidity of the blood entering the capillaries of the face and of several other parts of the skin, if these vessels contain a fluid, which must be displaced to make room for it.* For my own part, all this, which the ingenious Frenchman thinks probable, I do not think so: for I can see no analogy between the capillaries and the ureters: &c.

Secondly, dilated Pupils. A dilatation of the pupils is said to be another of the signs of compression of the brain; but it is also a sign of worms in the intestines; and it follows the rupture of a large vomica in the chest, when it announces danger.† Weak, relaxed, scrophulous, and leucophlegmatic habits, and persons who have swallowed certain poisons, or have had them applied externally, have generally dilated pupils. A dilatation of the pupils does not always attend amaurosis; the iris being sensible in some cases, when vision is entirely lost, and being fixed and unalterable on exposure to light in other cases, when the retina is not at all affected. Besides, the pupils are not always dilated even in apoplexy. Dr. Cooke, whose opinions are always intitled to respect, thinks that a contraction of the pupils is one of the worst symptoms in

* *Anatomie Generale.* Tome ii, page 475.

† Landre Beauvais *Semeiotique: ou Traité des signs des Maladies.* Edit. 2. § 1190.

apoplexy, He says, “ I never knew a person recovered from apoplexy, when the pupil was greatly contracted. My opinion on this subject is confirmed by that of Sir Gilbert Blane and Dr. Temple.” But I can assure these justly esteemed Physicians, that on the 13th of February, 1822, Sir James Yeo’s father had an apoplectic fit, with such contracted pupils, that on their authority, it was judged to be immedicable; and yet, that after some hours, he recovered from it. Nay, he had three fits afterwards, from all which he recovered, no paralysis remaining, but he died of a fifth fit, at Chatham, on the 20th of January, 1825.

Lastly, an increased pulsation of the carotid arteries. Why this occurring in a headach, should be deemed a sign of an extraordinary quantity of blood in the head, I am unable to tell. As the veins and the canals, or sinuses, serving as veins within the cranium, surpass the arteries in number and in capacity, and communicate freely with one another, if there be no obstruction to the return of blood by the internal jugular veins, I should think that when more blood is sent to the brain, then more returns from it.

How could there have been a congestion of blood in the vessels of the cortical part of the brain in the headach of that woman, to whom Sauvages refers, whose sleep was prevented by the throbbing of her temporal arteries? Sauvages does not say that her face was flushed, that her pupils were dilated, that her head was hot, &c. although he certainly intimates,

that she was plethoric. But how could she have been plethoric, when she was every month suffering a very profuse menstruation, an uterine hæmorrhage, no doubt,* and was by consequence chlorotic, that is, pale, and eating chalk, coal, and other indigestible things? There is a violent pulsation of the carotid arteries in that headach from excessive and repeated venesection for the cure of acute diseases, in which there is also pain of the head, with giddiness, and dilated pupils; but how can there be a congestion of blood in the cortical portion of the brain in this headach? In the recovery from fainting and from concussion of the brain, there is a violent pulsation of the carotid arteries, and a very remarkable pulsation at the wrist, if the patient be roused; and nobody supposes that in either case, there is a redundancy of blood in the head.† Mr. Abernethy says, that the man, who had been gored in the neck by a cow, and had lain ten minutes, or more, without any blood being carried to his brain by the left carotid artery, recovered from his extreme

* His words are *Menorrhagiam uberrimam quovis mense patiente. quæ inde chlorotica, i. e. pallida, picansque evasit.* Nos. Method.

† Morgagni de *Sedibus et Causis Morborum*, &c. Epis. iv. § 32 Epis. li, § 9, 10.

Sabatier *Traite d'Operations*.

Nosographie Chirurgicale par Ant. Richerand. Tome ii, page 218.

Précis Elementaire des Maladies réputées chirurgicales, par J. Delpech. Tome i, page 328.

Hunter's *Treatise on the Blood, Inflammation*, &c. p. 192.

Abernethy's *Surgical Observations*, containing a classification of Tumours, &c. Case, page 193.

faintness during that period, and became perfectly sensible. And it is a curious fact, that cutting off the supply of blood to the left side of the brain, should seem by this case, as Mr. Abernethy remarks, to affect the opposite side of the body in the same manner as an effusion of blood on the left hemisphere of the brain does.*

The greater pulsation in a headach may be of one carotid artery only, or of one temporal artery only: it may be of one external carotid only, which is smaller than the internal; or it may be of one internal carotid only, which furnishes no branches till it has arrived within the cranium: or, if a headach be connected with a disease of the heart, and the whole venous system be overloaded, the pulsation may be not of the carotid arteries, but of the jugular veins, which are contiguous to them. Sometimes the greater pulsation is not referred to the carotid arteries, but to the base of the brain.

In a word, if the most obvious of all the deviations from health be a disordered state of the whole, or of some part of the sanguiferous system, there is always an antecedent change in the whole, or in some part of the nervous system; and this antecedent change influences, generally or partially, not only the blood vessels, but also the blood itself; so that in defining any thing, and therefore a disease, if we would enumerate those qualities of it, which are the most obvious, and which may serve to distinguish it from other

* Surgical Observations, containing a classification of Tumours, &c. page 199.

things, we ought not to forget that the most obvious and palpable qualities of it are generally discovered before that other quality, which is the principal and paramount, in which its obvious qualities originate, in which its specific difference consists, and to remount to which is the main business of the philosophy of medicine.

There is a disease strongly resembling phrenitis; a very common disease *Hominum, et Virorum et Mulierum*, as I know by painful experience. It is called *delirium tremens*, and it may be distinguished by the following symptoms: headach, flushed cheeks, suffused eyes, and throbbing of the temporal and facial arteries, great debility of body and of mind, trembling of the hands, and of the tongue, if this be put out of the mouth, faltering of the voice, chilliness, watchfulness, delirium, *subsultus tendonum*, hiccup, picking of the bed clothes, and imagination of frightful objects, to avoid which the patient sometimes endeavours to destroy himself; pulse small, quick, and so frequent as scarcely to be counted; and sweat profuse, cold, clammy, and fetid. I believe blood-letting, in this disease, is as prejudicial as it is beneficial in phrenitis. In the brain of those who have died of this disease, which so much resembles phrenitis, there is not the least appearance of vascular fullness. There is perhaps less blood in the body in *delirium tremens*; and the little that is there, is quickly being diminished; because the patient's sweat is so abundant and so full of animal matter; because he neither eats nor drinks; and because opium, in large doses, often restores him to

health. Does not the increasing frequency of the pulse, in this disease, keep pace with the increasing diminution of the quantity of blood, as in animals bleeding to death in a slaughter-house? After inflammatory diseases, which could not have been overcome without large, repeated, and debilitating blood-letting, the pulse generally remains for some time too frequent. Dr. Darwin says, that “when a muscle is supplied with but little sensorial power, its contraction soon ceases, and may in consequence soon recur, as is seen in the trembling hands of people weakened by age, or by drunkenness.”

Perhaps Dr. Mead errs then in supposing that “most diseases of the head have a great affinity with each other, and commonly proceed from repletion.” For, if he mean by repletion, the state of being over full, and refer to the cranium, it may be doubted, that it is ever so; but, if he refer to the blood vessels of the brain, as he certainly does, there can be no doubt, that their diameters may be enlarged, and that they may be distended far beyond what they ever are in a healthy state, without their distention depending upon the impulse given to the blood by the systole of the left ventricle of the heart. Nay, although a greater fullness of the arteries of the brain is kept up by a plethoric state of the body, yet it may exist when the body is not at all plethoric. Instances of this are common enough: and, I believe, it is universally agreed, that when there is a Headach from depletion, it is increased by blood-letting, either local or general. It has already been observed,

that a flushed countenance, dilated and immovable pupils, and a greater pulsation of the carotid arteries do not denote a congestion of blood in the head ; but that they often attend a diminution of the blood there. I would now remark, that when, together with those three symptoms, there is a sensation of weight in the head, a dread of falling forwards, a noise in the ears, flashes of light or luminous sparks on straining, stooping, lying down, &c. and on other occasions, oblique or double vision, a perception of any of the choroidal vessels reflected, and of their pulsation, then it may be concluded, that the head labours under repletion : but that when together with those three symptoms, there are others like those affecting persons, who have suffered great losses of blood, as a violent pain confined to some part of the head, as if the brain there was pressed inwards by a lump of lead, great and sudden debility, with coldness of the extreme parts, sometimes vertigo, smallness and inequality of the pulse, noises in the head, and various nervous affections, then it may be concluded, that the head has suffered depletion.

If, however, the cranium and the brain be unaltered, if the ventricles of the brain contain the same quantity of fluid, and if no extravasation have taken place, the quantity of blood circulating within the head must always be nearly the same, because the cranium cannot be distended by its contents, and blood and brain are both incompressible, or nearly so.

It is commonly said, that it is difficult to account for repletion of the cerebral vessels, when

there has not been a greater action of the heart, and of the large blood vessels ; and also for depletion of them, when there has not been a considerable loss of blood from any part : but assuming that the circulation of the brain is necessary to its functions, I cannot see how a merely increased action of the heart can be productive of repletion in any part, or how a merely diminished action can be productive of depletion. That the brain should be secure against sudden repletion, and sudden depletion, seems to me to be a law of nature : and considering that there is neither the least dilatation of the arteries during the systole of the left ventricle of the heart, nor the least contraction of the arteries, during the diastole of that ventricle, I would rather suppose that repletion depends upon a weakness of the arteries of the brain ; for where opium induces insensibility and death, congestions of blood are found in the internal organs ; and depletion upon the arteries of the brain receiving less blood from the carotid and vertebral arteries, while the veins continue to take it up, and to carry it to the sinuses. I can easily conceive, that if the arteries contain less blood than is requisite to the energy of the brain, there should be various degrees of debility ; and that if they contain still less blood, and the circulation of it in them be suddenly suspended, there should be syncope.

The coats of the arteries in the brain, however small, may be supposed to be, as other arteries are, accompanied with nerves from the great sympathetic nerve : for ramifications from this nerve are easily enough traced on the larger arterial branches.

But although I cannot conceive how an enlargement of the diameters of the arteries of the whole brain, can give rise to any sensation, yet I would not deny that there may be a sensation of pain with a sensation of weight, or with stupor, &c. if the vessels of only one part of the brain contain more blood than usual, and those of other parts less; for a part of the pericranium, or of the dura mater, or of the pleura, being inflamed, a pain is felt in the whole of their extent; and where patients have complained of pain and heaviness in the head, some of the blood vessels of the brain have been found over distended with blood, and others not at all distended: therefore if we assume a temporary enlargement of the blood vessels in some spot within the cranium, as the *sine qua non* of Headach, we argue from a fact fairly and fully ascertained. Nor is our argument invalidated, although no enlarged arteries should be discovered after death: for if the cessation and the cure of Headach depend upon the removal of the enlargement of the vessels, it is not at all improbable, that such removal may be the effect of death. That intense inflammations of serous membranes often leave no trace of their existence after death, is known to every one, but is particularly noticed by Bichât, Bricheteau, and others.

Now, I do not suppose, that the blood vessels so distended, give rise to pain by their mere pressure, but rather by occasioning a change in the circulation of the blood. Nor, indeed, does it seem to be proved, that slight pressure on the brain is productive of pain, and of such other

effects as were formerly attributed to it.* As to Portal's experiment of compressing the brain of a dog, through a hole made in the skull, with a trepan, and as to his inference from it, " que le Cerveau est fortement comprimé dans apoplexie, et qu'il est moins lorsqu' il y a des Convulsions."† I would remark, first, that pressure on the brain when the cranium has an opening made in it, is no proof that the brain is compressed by distended blood vessels, or by extravasated blood, when the cranium is entire; secondly, that the experiments of Laghius show that the brain of dogs may be depressed six lines, without producing any uneasiness; and that when the dogs begin to complain, they soon become quiet again, if the pressure be not increased;‡ and thirdly, that we are not authorised to compare the result of experiments on healthy dogs, with the symptoms connected with morbid appearance in the human subject. Dr. Kirkland says, " there are abundance of instances which show that extravasated blood and serum do not cause apoplexies:" and considering what is so ingeniously advanced by Sir Everard Home, on the Fluid of the Ventricles equalising internal pressure;§ by Dr. Kellie on the peculiarity of the circulation within the head;|| by Bonetus,

* Abernethy's Surgical and Physiological Essays, part 1, sec. 1 and 2.

† Memoires sur la Nature et le Traitement de plusieurs Maladies. Tome ii, page 248.

‡ Morgagni de causis et signis Morbor. Epis. lx, § 13.

§ Philosophical Transactions, 1814, page 471, 1821, p. 32

|| Transactions of the Medico Chirurgical Society of Edinburgh. Vol. i, Art. 1.

Morgagni, Lieutaud, &c. as to appearances detected by dissection in those cut off by apoplexy ; and by Dr. Cooke, and the authors referred to by him, on the effect of blood letting in this disease,* I am inclined to believe that apoplexy does not depend on a mere distention of blood vessels. Dr. Baillie could find no morbid appearance in the head of a person who died of erysipelas in the face, although he had been affected with coma : nor could Dr. Wells detect any extraordinary fullness of the vessels of the brain in a stout young soldier, who had died comatose, while labouring under scarlet fever.† Surely the blood vessels, and perhaps the brain itself must be diseased in apoplexy ; and the distention of the blood vessels, when it is found, must be the effect of it.

* A Treatise on Nervous Diseases. Vol. i, page 285, &c.

† Transactions of a Society for the improvement of Medical and Chirurgical Knowledge. Vol. ii, page 225.

CHAPTER II.

DEFINITION OF HEADACH.

ALTHOUGH Galen declares, that they who do not distinguish Headachs, but prescribe indiscriminately the same remedies for them all, do more harm than good; yet even in Willis's time, the cure of Headachs was rather tentative than scientific: and at this very day the most learned and experienced in the profession do not scruple to confess, that we have no certain method of curing the more tractable Headachs.* This confession, coming from great authority, is most humiliating; but I would attribute the want of success in curing Headachs, in part to the want of a symptomatology founded in pathological anatomy, and in part to the vagueness and ambiguity of the medical nomenclature. As to physical changes of structure in dead bodies, if we cannot reason from them to the morbid

* Thomae Willis Opera omnia. De Anima Brutor. part ii Cap. 1.

Gulielmi Heberden Comment. de Morbor. Historia et Curatione. Cap. 17.

action which produced them, it seems to me that no useful knowledge is to be derived from the mere contemplation of them. Congestions of blood in the vessels of the brain, of the gastro-enteric mucous membrane, &c. do not throw any light on the nature of fever; they are the mere effects of the fever. And as for all that reasoning relating to Headachs, which no sound, and sober and well-educated Physician any longer maintains, however some conceited patients may pretend to understand it, and to be satisfied with it, fascinated, as it were, sometimes by the mere euphony of metaphysical and technical terms, and sometimes by mean and vulgar metaphors, which seem always to pass with the ignorant as an ingenuous opening for them of a *via regia*, as I have long endeavoured to forget it, I shall allude to it as little as possible. My sole aim is, laying aside all pretensions to depth, to subtilty, and to innovation, to identify the experience of others with my own, and to convey it in simple and perspicuous language.

I shall tell, first, what, I think, a Headach is; and shall next show what is not a Headach.

I purpose, then, to confine the word Headach to every disagreeable sensation, which the patient refers either to the inside, or to the outside of his head, provided that the disagreeable sensation be so increased by the exercise of his intellectual powers, that he is alarmed, reserved, and shrinking from the impression of internal objects, his pulse and his respiration being not more frequent than in health, but his temperature, that of his extremities especially, being more or less dimi-

nished. This conjunction of symptoms is, I believe, established by nature; for it has at all times, and in all places, been found in different individuals. It is the character of all Headachs: and perhaps the term Cephalalgia has from Hippocrates downwards been given to all Headachs. Indeed I am mistaken, if Cephalalgia was not among the Greeks, as Headach is among us, not only a popular word, but also a scientific term: for if Headachs be recent, or of short duration, we are told by Aretaeus that no other name than Cephalalgia was given to them: but if they be of long duration, although not violent, or if they return periodically, and be daily worse, every succeeding paroxysm surpassing in violence that immediately preceding it, that they were distinguished by the technical term Cephalaea. Galen, who flourished at Rome, in the reign of the Emperor Commodus, and was, Morgagni says,* contemporary with the grammarian Julius Pollux, also says, that Cephalaea is a Cephalalgia inveterate and of difficult cure.† Therefore, it is clear, not only that the term Cephalalgia was more generally known than Cephalaea in the time of Aretaeus and of Galen; but also that Cephalaea was then distinguished from Cephalalgia as we now distinguish a species from a genus, by showing its greater comprehension. If any other proof of the legitimacy of this inference were

* De Sedibus et Causis Morborum, &c. Epis. xxxix, § 6.

† His words are, ἡ λεγομένη κεφαλαία χρόνιος ἔτε καὶ δύσλυτός ἐστὶ κεφαλαλγία. De Comp. Pharm. secundum Locos. Lib. ii, cap. 2.

necessary, I might observe, that I have not been able to find the word *Cephalaea* in any of those writings of Hippocrates, which all allow to be genuine,* nor more than once in all those, which have been ascribed to him.

I would restrict the term *Headach* to a disease, in which, whether the pain be referred to the integuments of the head, or to some part within the cranium, it is of such a nature as I have described it to be; that is, it is increased by the exercise of the intellectual powers. We oftener hear an internal pain referred to an external part, than an external pain to an internal part; the reason of which is, that we are generally unconscious of internal impressions. Impressions on internal parts are, however, felt sometimes, as when volition is troubled by the passions.

The only epithet which Celsus gives to the pain of *Headach* is intolerable (*intolerabilis*), and unless the pain be intolerable (*nisi intolerabilis est Dolor*), he says, there is no necessity for the remedies of *Headach*; meaning, I suppose, that there is no *Headach*. He does not allude to the mere degree of the pain; for this, according to Aretaeus, as already remarked, is sometimes so slight as to be disregarded by the patient; and according to Galen, it is always less than the

* The following have always, according to Pinel, been regarded as legitimate Works of Hippocrates. “1. *Aphorismi*. “2. *Liber Praenotionum* 3. *Liber primus et tertius Epide-* “*miorum*, 4. *De Aere, Locis, et Aquis*.” See Pinel’s *Nosographie Philosophique, ou la method de l’Analyse appliquée a la Médecine*.

pain of cholic, or of tooth-ach. But if Celsus did allude to the degree of pain, a degree of pain cannot be measured: it is not capable of being exactly doubled, tripled, halved, or of bearing any assignable proportion, as proper quantity is, to another quantity of the same kind: neither is it capable of being measured, except by means of some proper quantity related to it, as velocity of motion is by the space passed over in a given time, which is an example of improper quantity, according to Aristotle. Again, a patient's own complaint is no evidence of the degree of pain, which he may be suffering: for some endure very great degrees of pain without a murmur, while others, scarcely scratched with a pin, should seem to be diminishing a torture by their heart-rending scowls, grins, and writhings. Nay, and I may add, that more complain of Headach than of any other disease, from a persuasion, I suppose, that they cannot be convicted of their deceit.* Nobody contends that it requires a Demosthenes to feign a Headach.

Neither does Celsus allude to any of those qualities, heat, cold, acuteness, itching, torpor, or numbness, dullness, lightness, swimming, weight, distension, contraction, &c. any one of which may accompany the sensation of pain, but is a distinct object of consciousness. Celsus does indeed notice a numbness and itching, which are one time felt over the whole head, and another time in a particular part, and a sort of

* Quis ignorat maximam Illecebram esse peccandi Immunitatis Spem? Cic. pro Mil. § 16.

coldness of the head, extending to the tip of the tongue, as signs of danger acceding to a Headach of long continuance : but this he does, where he treats of those signs, which are favourable or unfavourable in diseases,* not where he treats particularly of Headachs. By using the adjective intolerable, and by not affecting to give a logical definition of the pain in Headach, Celsus seems purposely to leave it for us to find out what that adjective stands for ; and shows, that he knew, as well as we do, that in treating of the powers and operations of the mind, and of the body, we are frequently obliged to use words for things, which we cannot logically define, however clear and distinct our notions of them may be. I have no doubt, that the pain in Headach is peculiar, because the structure affected is peculiar : nor do I admit it as an objection, that the pain is not always the same, but rather rely on it as a confirmation of my opinion, there being a variety of structures within the cranium, all which are peculiar. Must it not be a peculiar pain, which so affects our intellectual powers as to obstruct entirely our pursuit both of knowledge and happiness ? This is the meaning, which I understand, in the adjective intolerable, as it is applied by Celsus to the pain of Headach. I must not omit, however, to observe, that the intellectual powers are not so affected in Headach as Bursarius asserts : for he asserts, that the patient is stupid. I have never found him so : his sensation has always seemed, to me, to be more acute,

* Lib. ii, cap. 8.

his perception, as to superficial extension, figure, colour, illumination, and more especially as to the distance at which objects were from him, more precise, and his reason clearer, prompter, and more correct. I could never detect any loss of memory, or any disability of his mental powers, but always thought that, if he had received a liberal education, he could perform a mental analysis well, although he could not do so without an aggravation of his symptoms.

The pain in the head is often attended with a pain and a tension of the neck, both which sometimes cease when a flow of blood from the nose supervenes; but they sometimes do not go off with the hæmorrhage, and they generally denote danger. When the pain is deep seated in the back of the head, constantly extending from the foramen magnum down the cervical vertebrae, and there is laboured respiration, impeded speech, difficulty in moving the head, numbness of the upper part of the chest, or tingling of the skin there, weakness of the arms, and through the medium of the great sympathetic nerve, disorders of the thoracic and abdominal viscera, there is, perhaps, sanguineous congestion at the base of the brain, and for some way down the spine, or some other affection there. But the pain sometimes leaves the head, extends low down the spine, and is then often mistaken for rheumatism: but numbness of the lower extremities soon following, shows, that there is some disorder of the spinal nerves.

The pulse at the wrist being unaltered in Headach, or being less frequent, is accounted

for by the action of the heart not depending upon the brain. The action of the heart is, however, occasionally rendered more frequent, through the medium of the brain, by the passions : and it is so, perhaps, for some seconds, when a Headach suddenly begins, although in this case, the pulsations of the radial artery are never so frequent as those of the heart. To the slowness of the circulation may, perhaps, be attributed the polypi which Lieutaud found after Headach.* I know, that a Headach is sometimes attended with a fever, at least with a more frequent pulse, and a white tongue : but I regard this as accedent, and not at all as essential. It begins during the Headach, and it ends long before it ends. It has no regular exacerbations or remissions. It is a febricula, depending, perhaps, on an affection of the vasa vasorum of the arteries.

The respiration in Headach generally corresponds with the pulse ; so that if there be fewer respirations in a minute, there are fewer pulsations. But I have known the respiration to be disordered in a Headach, and the patient to be disturbed with horrible dreams, the pain in his head extending all down his cervical vertebrae, and even to his shoulders and his axillae.

We suppose that, during one respiration, there are about four pulsations. On an average, we make 20 respirations in a minute ; and therefore 28,800 in 24 hours. Dr. Menzies made experiments on a man, who breathed 14 times only in a minute : and Landre-Beauvais says, that a

* Hist. Anat. Med. Obs. 482.

man at Paris had a pulse, which never exceeded 24 or 25 in a minute.* But if the blood continue to undergo that destined change, which depends upon the atmosphere rushing into the lungs during inspiration, how are the chilliness or the coldness of the extremities in the exacerbations of Headach to be accounted for? Dr. Parry would refer it to a disturbance of the balance of circulation, as if when there is an excessive determination of blood to the head, less is sent to the lower extremities : but as I do not believe, that there is any determination of blood to the head in Headach, I would rather refer it to a disturbance of the vital powers. There is certainly no determination of blood to the head in syncope and in concussion of the brain, in both which the extremities are very cold. Besides, Mr. Brodie and Mons. Chossat have shown that poisons, which impair the vigour of the nervous system, diminish the temperature;† and Dr. Wilson Philip, that lessening the extent of the nervous system, by destroying part of the spinal marrow, does the same;‡ so that animal heat does not depend entirely upon respiration, but in part upon the nervous system. When, however, the circulation is languid, the temperature is always diminished.

Thus then, if the symptoms, on which I have fixed, constitute a Headach ; if, in other words,

* *Séméiotique*, &c. §. 56.

† *Philosophical Transactions* for 1810 and 1812

‡ *An experimental Inquiry into the Laws of the Vital Functions*. Edit. 2. page 161.

they be never absent, when a Headach is present, to distinguish a Headach from other diseases of the head, presupposes nothing more than a knowledge of these other diseases. Sauvages enumerates twenty-seven diseases of the head,* besides Cephalalgia, Cephalaea, and Hemicrania; so that, if a disease be a Headach, it cannot be one of that twenty-seven.

Many wish for positive and direct evidence, where, it seems, no other than that obtained by the method of exclusion is to be had: and yet they acknowledge, that this method seldom fails to assist in forming a right judgment; and what is more, in leading to a just prognosis. Now, to inquire into the evidence of decisions in those sciences, which have absolute truth for their object, and in those sciences which have conditional or hypothetical truth, would draw me into a digression very unsuitable to my present scheme, and to that point of view, in which I consider it: but I cannot help avowing, that the method of exclusion seems to me to be the only one, which ought to be employed in medicine. It is the method adopted by Morgagni from the beginning to the end of his stupendous and invaluable work, *de Sedibus et Causis Morborum*.† And is it possible that there can be a better way of obtaining general truths in the sciences of fact and experience, than by observing and examining particulars, by rejections, and exclusions, or

* See the Prolegomena to his *Nos. Method.* §. 49, &c. Also his *Methodus Anatomica Morborum*.

† See more particularly his *Epist.* xxxix, §. 16, 17, 18, &c.

by analysis, so as to separate and decompose nature? If any one do seriously believe that there is a better way, let him once more, and with greater attention peruse the 15th, 16th, 17th, and 18th Aphorisms, in the second Book of the *Novum Organon Scientiarum* of the immortal Bacon; and let him peruse Sir Isaac Newton's Letter, concerning his Theory of Light and Colours, to Mr. Oldenburgh;* and the "*Opuscles de feu G. L. Le Sage relatifs a la Méthode*," which are annexed to Pierre Prevost's "*Essais de Philosophie, ou Etude de l' Esprit Humain*."

I shall now proceed to tell, what a Headach is not. And I shall not err, I am persuaded, if I maintain, that the division of Headachs into external and internal, is most unphilosophical. For to give the name of Headach to a disease of the integuments of the head, which neither differ from the integuments of other parts, nor, when disordered, require different means of cure, what is it, but to confound things most distinct and simple in themselves? I am convinced, that every texture of the body, has its own proper symptoms, its own proper pain, &c.

But although external Headachs, as they are called, are not, in my opinion, properly included in the extension of the term Headach, yet it may not be amiss to consider a little by what signs they have been said to be distinguished.†

* Horsley's edition of Sir Isaac Newton's Works, Vol. iv, page 320.

† *Externas affici Partes cognoscimus, si Capilli quasi rigent, et Dolor solo eorum Attactu, aut Cutis Compressione*

One sign is, if the pain be attended with an erection of the hair of the head, as of bristles, which being merely touched, and more especially turned the wrong way, the pain is increased. But this is an ambiguous sign: for it may depend not only upon a disease begun in the integuments of the head, but also upon the integuments of the head having sympathised with some part, in a state of disease, either within the cranium, as the dura mater, or in some remote part of the body. Besides, a part may be in pain from its sympathising, without being tender when pressed; and it may be tender to the touch, and even diseased because it has sympathised. Sydenham observes, that the pains, which affect the external parts of hysterical patients leave the parts, they had affected, as tender to the touch, as if they had been well cudgelled: and Heberden, that the pain of a Headach will sometimes leave a soreness of the integuments of the head for a day.

Nor should it be omitted, that a disease within the cranium, and even death, are sometimes the consequence of a disease in the integuments of the head, as of a carbuncle, or erysipelas, from the removal of a small encysted tumour, &c. there being a free communication by vessels between the outside and the inside of the cranium, not only at its sutures, but also in every other

extrinsecus facta intenditur; si Rubor aut Tumor aliquis Oculis pateat, Functionibus interim Cerebri nihil, aut parum omnino laesis. Contra ejus Sedem intra Calvariam esse indicant contrariæ Notæ: in primis tunc, cum dolore mens stupet, &c. Burserius Inst. Med. Prac. Vol. iii. p. 13.

part, because there are foramina in every other part of it.

Another sign is, if there be any redness or tumour on the scalp. But if the scalp shall have become inflamed, by sympathising; or if stimulant and rubefacient liniments shall have been employed for a pain depending upon a disease within the cranium, inflammation in the integuments can be no better sign than the former.

A third sign that the pain, as well as the proximate cause of it, is seated in the integuments of the head, is said to be an obscure redness of the skin, together with a suffusion of the eye. Galen, who divides Headachs into external and internal, distinguishes the latter by the pain darting to the roots of the eyes, because, he says, the sclerotic coat of the eye is a continuation of the dura mater. And, considering that the dura mater extends into the orbit, or is continuous with the periosteum lining it, so that when, on the one hand, the dura mater is inflamed, the eye is red and irritable; and that when, on the other hand, an injury has been done to the orbit, suppuration of the dura mater sometimes follows it, I am of Galen's opinion. Besides, the origin of the ophthalmic artery being within the cranium, and its course into the orbit, would lead one to think an inflammation of the eye denotes a disease within the cranium. Then Lomminus pronounces an inflammation of the eyes to be a bad symptom in Headach, which it can scarcely be, if there be no disease, except that of the integuments. Again, Whytt and Quin mention an ophthalmia as occurring in the third stage of dropsy of the brain.

And lastly, the two first cases of Headach noticed by Morgagni, in his first Epistle, and that in the sixth Section of his twenty-fifth Epistle, were attended with a suffusion of the eyes, and an increased flow of tears, and they could not have been external Headachs.

A fourth sign is noticed by Sir Gilbert Blane thus: “ There are many cases of Headach depending on indigestion, and the seat of these seems to be the integuments, as there is generally in such cases a tenderness to the external touch.” Now, with all due deference to this learned and able Physician, if indigestion precede a pain in the head, is it not more likely that the brain should sympathise with the stomach, by means of the eighth pair of nerves, than that the integuments of the head should do so? I do not mean to deny, that the skin of the head may sympathise with the mucous membrane of the stomach: but as there can be no doubt that some of the extremities of the pneumo-gastric nerves terminate in the papillae of this membrane, if there be a pain in the anterior part of the head, affecting more particularly one eye-ball, subsequent to indigestion, there is often no concomitant tenderness of the skin of the head; never, I believe, till the pain has continued long, or has been frequently felt there at short intervals.

A fifth sign of an external pain in the head, mentioned by Dolaeus, is a falling off of the hair.* I know no other author who takes notice

* Si exterius oritur Dolor, quando scilicet Vitium non in ipsa Penetralia descendit, sed tantum intercus est, tunc Capilli ut Folia Tempore autumnali decidunt. Ency. Med. Theoretico-pract.

of this sign ; nor did I ever see it in a pain of the head, nor except in the Area of Celsus, the Porrigo of Willan and Bateman, in the progress of Consumption, and as a consequence of some fevers.

So much for the signs of an external Head-ach. I proceed next to notice some of the pains in the integuments of the head, which are improperly called Headachs. These pains are such as occupy one half only of the head, extending no farther from the hairy scalp than an imaginary line, dividing perpendicularly the nose into two equal parts. Dr. Heberden has heard of a hemicrania oftener on the left side, than on the right ; but does not know how it differs from other pains in the head, except in the circumstance which its name denotes ; and therefore believes its occurrence on the one side, or on the other, to be merely accidental. Aretaeus certainly thought it accidental ; for he first called it Heterocrania. But allowing, that the right hemisphere of the brain is the larger, that the right carotid artery, and the right subclavian are the shorter, and that the right side of the body is possessed of more vigour in its functions than the left side, as Petit shows that some have believed,* I do not see, that these circumstances throw any light on the question.

Celsus does not use either of the words, Hemicrania and Heterocrania ; but says, that all Headachs, at one time, affect the whole head,

* Petri Petiti Comment et Animad. in prim. Aretaei Capad. Libr. de Morb. diuturn. p. 176.

at another, a portion of it, and sometimes so that their pain extends to that part of the face which is next the mouth. The pain must, therefore, be in the head, and extend to the face. Caelius Aurelianus, who lived at Sica, a town in Numidia, in Africa, in the fifth century, as Reinesius and Saxius conjecture, says, that when a vehement pain is of half the head, it is called by the usual name Hemicrania; but that when the pain is of the temple at least, or extends no farther from the hairy scalp than to the temple, it is called Crotaphos.* He would not have called it a Headach, if the pain did not extend from the head, or if it were confined to the temple.

But it is not certain that Celsus or Caelius consider Hemicrania as an external Headach. Aretaeus describes it as a Cephalaea; and Morgagni, who does not object to the division of Headachs into external and internal, expressly calls Ramazini's Headach an internal Hemicrania. However, why one half only of the head should be in pain, whether the cause of it be external

* His words are: Sequitur in Passione constitutos Dolor vehemens Capitis *totius*, aut *dimidii*, quem consueto nomine *Hemicraniam* vocant, vel certe Temporum, quem Dolorem *Crotaphon* appellant. Morb. chronicor. Lib. i. cap. 1. Of Caelius it has very justly been said, Stilus redolet Patriam: but Theod. Janss ab Almelooven gives this reason for his preference of *Temporum* to *Temporis* in the above quotation: “κρόταφοι, *Haec Tempora, singulare non habent.*” Lexicon Caelianum. Could the learned Editor have forgotten that the Medicorum Cicero uses the singular number for one of the Temples? At Facies Suturam habet maximam, quæ a Tempore incipiens per medios Oculos, Naresque transversa pervenit ad alterum Tempus. Lib. viii. cap. 1.

or internal, I can no more tell, than I can why a profuse perspiration, or a jaundice, should sometimes be confined to one half of the body, divided by the medium line, cases of which are recorded by credible authors. And, perhaps, no more can be said of such facts as these, that a pain is more frequently on the right side of the head, when there is a disease of the right mamma, of the right lobe of the liver, of the right kidney, or of the right ovarium; and that a pain is oftener on the left side of the head, when there is a disease of the left mamma, of the left lobe of the liver, of the spleen, of the left kidney, or of the left ovarium, &c. than that they have been forced on the mind by the lessons of experience.

I shall speak more particularly of sympathy, when I shall have come to the division of Headachs.

First, there is a Hemicrania or a Heterocrania, which is periodical, returning every morning, at sun-rise, arriving at its height by noon, and remitting and ceasing about sun-set. This seldom lasts beyond the fourteenth day. But it may return every evening, or every night, and observe the same times: this, however, is very rare. A Hemicrania may also return at the same hour every other day, or every eighth day: hence it has been considered as a topical intermittent, or a febris larvata, and has been cured by the Peruvian bark. But I cannot consider an intermittent as a fever, and the paroxysm of a pure intermittent as an example, model, or epitome of all fevers. I know no reason, that an intermittent should not occupy the integuments of one half the head, as well as those of

one arm, without affecting the rest of the body ; the cold stage, the hot stage, and the sweating stage, being as fully and distinctly marked, although in a part, as if the whole body suffered them.

The reader may recollect, that Sydenham detected an intermittent under the mask of an apoplexy, by the redness of the patient's urine, and by its depositing a lateritious sediment : so that after waiting till its mask had fallen off, he attacked the intermittent with Peruvian bark, and so overcame it.

Secondly, another Hemicrania, which may return, and be periodical, is a Neuralgia, or *Tic douloureux*. The Baron Van Swieten mentions some cases of it, but does not expressly call them cases of Hemicrania. He relates, that a Nobleman consulted him for a pain in one side of his head, which returned every day at the same hour, raged for eight hours, and then gradually ceased. The Nobleman pointed out the part, where the pain began, which was at the supra-orbital Foramen of the *Os Frontis*, from whence it extended over the whole half of the head, on the same side. While the pain lasted, there was no alteration of the pulse at the wrist ; and the Nobleman was well in every other respect.* I would say, that he had an orbito-frontal neuralgia, together with a topical intermittent, and that the former was modified by the latter.† How he

* Comment. in Boerhaavii Aph. §. 757.

† Ou a vu des Céphalalgies, la Cophose, l' Odontalgie, de Convulsions hystériques, une Hémoptysie, la Ménorrhagie,

came by the predisposition to Neuralgia, it is impossible to tell. When Tic douloureux is exactly periodical, and returns without any evident cause, it is always, I suspect, complicated with an intermittent

If the integuments of the head have been contused in a certain point, and compression of that point excite a disagreeable sensation there, and sometimes convulsions, more especially if the pain extend and follow the branches of some nerve of the fifth pair, there can be no doubt, that the disease is Tic douloureux. Compression is not always necessary to occasion it; a breath of air is sometimes sufficient. I have known Tic douloureux follow a blow on one of the temples, and the pain to follow the divisions of the temporal artery.

Tic douloureux is seldom to be traced to the injury of a nerve; neither are all nerves equally susceptible of it. Indeed the causes which predispose any nerve to it, are not clearly ascertained, for it may affect other nerves, as well as the branches of the fifth pair, although it oftenest affects the superior maxillary nerve, or second branch of the fifth pair. But sensation in the integuments of the head must depend upon the fifth pair of nerves, or upon the tenth, which supplies those parts, to which the branches of the fifth do not extend. Whatever nerve is the

la Fièvre, etc. dénaturer entièrement les Caractères de cette Maladie (Néuralgie) et lui donner les apparences d'une affection hystérique, d'un Rhumatisme, ou de quelque Lésion organique grave. Delpech, Précis Elémentaire de Maladies réputées Chirurgicales. Tome iii, p. 207.

subject of *Tic douloureux*, there is no visible alteration of it; neither is any increase of heat and of vascularity necessary to the attack of *Tic douloureux*, although they are frequently consequences of it. But whatever may be the condition of any cranial or spinal nerve, upon which its predisposition to this disease depends, that condition seems to be increased by a weak and irritable state of the system; so that, till this is removed, neither topical applications, nor the division of the nerve is always of any utility; and when it is removed, the disease seems to cease spontaneously. It is in confirmation of this, that the carbonate of iron, cinchona, sulphate of quina, an extensive cuticular eruption, &c. have all been found so effectual in removing this disease; and that disorders of the digestive organs, the depressing passions, the abuse of fermented liquors, and the irritation of some nerve at a distance, so powerful in occasioning it.

It may astonish some, who are not medical men, that the occasional cause of a pain in the integuments of the head, or of the face has been found in the great toe: but there is nothing remarkable in it. Tulpius cured a Headach, which alternated with a pain in the great toe, by applying a cupping glass to it.* Dr. Short cured an epilepsy by extracting a hard cartilaginous substance about the size of a pea from the leg at the lower end of the *gastrocnemii* muscles, where the disease had always begun:† and the Editor

* *Obs. Med. Lib. i. cap. 33.*

† *Medical Essays and Observations by a Society in Edinburgh. Vol. iv. p. 416.*

of the Medico-Chirurgical Review states, that
 “ in a conversation which he lately had with Sir
 “ Henry Halford, on the subject of this com-
 “ plaint, that experienced Physician mentioned
 “ several remarkable cases, many of them in
 “ high life, where it ultimately turned out, that
 “ some bone was diseased and kept up this sym-
 “ pathetic irritation in the fifth pair of nerves.—
 “ One of them, was that of an officer, who had
 “ lost a limb, and had afterwards become affect-
 “ ed with neuralgia facialis, on which nothing
 “ could make an impression. At length, a piece
 “ of bone exfoliated from the stump, and the
 “ neuralgia disappeared.”*

Mr. Wardrop has related the case of a wound in a gentleman's thumb, which readily healed by adhesion, and the cicatrix seemed perfectly natural; but the patient still complained of pain in it, and in the fore finger, and the radial side of the middle finger, which extended up the arm, and as far as the neck and side. He divided the injured nerve, all the symptoms abated, and the thumb remained numb: but even now, when from any cause the gentleman's stomach is disordered, he feels a pain in his thumb.†

I have known the head affected with a pain in a single point, by consequence of a blow on it, which pain extended around that point, and was the less the farther from it, but was for twelve months afterwards renewed by disorders of the stomach, as after a debauch; perhaps all painful affections of the nerves of the integuments of the head and face, are cases of *Tic douloureux*.

* Medico-chirurgical Review for June 1822. p. 177.

† Medico-chirurgical Transactions. Vol. xii. p. 205.

Thirdly. When the external table of the skull has been fractured, if there be any fragments of bone detached and unconnected with the soft parts, they ought to be removed : but if they be attached to the soft parts, they ought not to be renewed, but to be replaced, and covered carefully by the integuments drawn smoothly over them. This it is necessary to remember, because, when the pain in a Headach is fixed to a spot in the head, and returns always to the same spot, it may be known to depend upon a diseased state of the external table of the skull by its being increased, and by its being renewed, during an intermission of Headach, by pressure of the integuments over it. But pain, a symptom of Headach, always returns to the same spot, when the internal table of the skull is diseased ; and in this case, pressure of the integuments of the head, neither increases, nor renews the pains. It may, however, be known to depend upon a diseased state of the internal table of the skull, by making the patient hold his breath for a few seconds, and, during those few seconds, use any effort : for then, the blood vessels of the brain being distended, the dura mater and cranium are compressed by the brain.

After a fall or a blow on the head, there is sometimes a pain in one half of it, which soon ceases, whether the means of preventing and of curing inflammation have been employed or not : but the integuments of the head remain tender, and are at times affected with lancinating pains, so that the disease is called an external Headach, and is very little regarded, till months, perhaps,

afterwards, when symptoms of inflammation of the brain supervene, the patient dies, and an encysted abscess is found in his brain, with inflammation of the cerebral substance surrounding it. It should seem, in such cases, that the abscess is the termination of a chronic inflammation unattended with alarming symptoms, such symptoms as there may have been, ceasing as soon as the abscess is formed ; but that the supervening inflammation of the cerebral substance surrounding the abscess, which destroys the patient, is not chronic, but acute. Here an inflammation of the brain is mistaken for an external Headach. —Mons. Lallemand remarks, that patients seldom die of chronic change of structure, because the symptoms of them disappear, but of acute inflammation, or hæmorrhage in their vicinity.

Fourthly. A pain of one side of the head is very common to those, who during the winter, sit always on the same side of the fire, and so render the integuments of one side more tender than those of the other. This pain may, however, be occasioned by exposing the feet, and I think the hands, to cold, the membranes of the head being then affected by them, as they are by the torpor and coldness of a dying tooth, by the debility of the stomach after drunkenness, &c. and the pain recurs periodically like an intermittent. The cutting of a dens sapientiæ, late in life, was attended with a pain affecting the cheek, the eye, the temple, and all the corresponding side of the head, and assumed a quartan type, which yielded to no medicine, but ceased as soon as the gum was lanced.

The first or second dens molaris of the under jaw, if decaying, may occasion a pain of the head on the same side, which pain, if it be most violent about the middle of the parietal bone, is that usually called *clavus hystericus*.

When a pain in the integuments on either side of the head is traced to a carious dens molaris, in a person, who has not yet arrived at the adult age, he has generally a bad constitution, and weak lungs.

Fifthly. Persons overheated and perspiring freely from exercise, or from any other cause, and persons not overheated, if they suddenly expose one side of their head to the north-east wind from a window, or while riding in a carriage, with one or both of the side windows down, are often seized with a paralysis of the muscles of their face on that side, which by consequence loses its expression, so that in smiling, laughing, crying, coughing, sneezing, &c. a ludicrous appearance is given to their countenance. An abscess or tumour behind the angle of the jaw, compressing the portio dura of the seventh pair of nerves, often does the same. So does a division of the portio dura after its emergence from the stylo-mastoid foramen. And as the orbicularis palpebrarum and the corrugator supercilii muscles receive the superior branches of the portio dura, so when these branches are divided, or are no longer capable of controuling these muscles, neither the eye can be closed, nor the eyebrow knitted, so that the eye remaining uncovered by night, as well as by day, is consequently exposed to light, dust, &c. and inflammation,

opacity of the cornea, and loss of sight generally follow. Sometimes an inflammation in the ear, and a discharge from it precede the paralysis of the face, and during this inflammation, there is a pain in the integuments of the same side of the head. This partial pain alarms the patient, who attributes it to an affection of the brain : but the sensibility of the palsied cheek remains, and the actions depending on the fifth pair of nerves are all perfect.*

Sixthly. An exostosis on the cranium, from whatever cause arising, may occasion a pain on one side of the head, which, if the exostosis be venereal, is felt most during the night, and is dull and obtuse. But when a circumscribed tumour is formed, the pain is no longer extended over half the head, but is confined to the exostosis, or node. So while a node is forming on the tibia, near the insertion of the sartorius and gracilis muscles, the whole tibia is in pain.

All tumours on the head may be attended with pain of one whole half of it ; but encysted tumours there are often without any pain.

An exostosis from scrophula is more to be suspected in young persons, than in those whose growth is completed.

Seventhly. A pain in half of the head has been traced to some disease of a cavity connected with the nostrils : the antrum Highmori, which is lined with a membrane less vascular than the Sneiderian, has been inflamed and suppurated, has contained an hydatid, or has been the seat

* Medico-chirurgical Transactions, Vol. xii, p. 110.

of cancer ; and in all these affections, one side of the head has been in pain. And suppose an insect, or any foreign body to be in one of the frontal sinuses. Examples are not wanting of insects nestling there, and even of lumbrici coming thence, which had occasioned a vehement hemicrania for twelve months, when they were at length dislodged. It is easy to conceive how minute eggs may be drawn into the frontal, ethmoidal, and sphenoidal sinuses, while a person inhales the odor of flowers, or when flies are attracted to his eyes or to his nose by mucous, purulent, or putrid discharges. It may not be improper to enumerate the chief of the signs of things in one of the frontal sinuses : the most constant of these are a fixed pain at the bottom of the forehead, and at the root of the nose, a spastic contraction of the eye-lid, a red and watery eye, sneezing, dryness of the mucous membrane of the nostril on the same side, perhaps a disagreeable smell from it, restlessness and sometimes giddiness, and convulsions or delirium. Sheep so affected run and roll themselves upon the ground. These symptoms are not to be wondered at, since the membrane lining the sinuses and the nostrils is supplied with nerves from the fifth pair as well as from the first : but these symptoms are plainly not the symptoms of Headach : and were I told by a patient that he had a Headach, while I saw him rolling about, and heard him complaining aloud, I should not believe him.

Eighthly. There is sometimes a pain on one side of the head, when the eye of the same side is inflamed.

Perhaps the inflammation of only the Tunica Conjunctiva which is a mucous membrane, is never the occasion of pain in the head. Indeed, the inflammation of it is justly observed to partake more of venous than of arterial action. Its arteries however, as well as those of the Sclerotica come from the ophthalmic artery; and its nerves, although too fine to be seen, are probably from the fifth pair, and from the portio dura of the seventh pair.

The sclerotica is generally inflamed by consequence of the conjunctiva being so: but the sclerotica is sometimes inflamed, when the conjunctiva, the cornea, and the iris do not seem to be so.

If the sclerotic coat be inflamed, its proper vessels are enlarged and may be seen running in converging lines from the beginning of the visible hemisphere of the eye-ball to the circumference of the cornea, and not passing over it, but forming a dark coloured, vascular, and prominent zone around it. This is generally attended with a dull pain of exactly half of the head, like the pain of fibrous membranes; and rheumatic pains often attend it, or alternate with it. In the beginning of this ophthalmia, the pain is chiefly in the head, but is most severe in the temple. The pain is constant, but remittent, the paroxysm beginning at four, six, or eight o'clock in the evening, arriving at its acme by midnight, and at its paracme towards morning. The patient complains of fulness and distension rather than of pain in the eye-ball: and Mr. Wardrop says, his eye bears the light, which it does not do in

most other inflammations of it; but Dr. Vetch says, intolerance of light attends it.

When the choroid coat and the iris are inflamed, there is a whitish circle round the cornea, and the anterior ciliary arteries are chiefly affected. The pupil is contracted, square, oblong, rhomboidal, or polygonal; and lymph is deposited upon the iris, but seldom upon its ciliary border. The humours of the eye are dull, the motions of the pupil are slow and limited, there is impatience of light, and dimness of sight. In this case, the hemicrania sometimes comes on in the morning, and the eye is not in so much pain as the head.

When the retina is inflamed, the predominant symptom is a sudden vehement pain extending from the bottom of the eye-ball to the occiput, or in the reverse direction, and there is the super-vention within a few hours of total blindness. In some cases, inflammation of the choroid coat attends, when the pupil is motionless, and there is a livid red hue of the sclerotic coat around the cornea. The pain is attended with an alarming kind of confusion, as if the patient were about to lose his intellects.

Hemicrania generally precedes amaurosis; and generally ceases, when the amaurosis is complete.*

An Aneurism by Anastomosis in the orbit was attended in Frances Stoffel's case, with Hemicrania of the same side, a constant noise in the head, resembling that of a pair of bellows, and a cold

* A Synopsis of the Diseases of the Eye, &c., by Benjamin Travers, Surgeon to St. Thomas's Hospital.

obtuse pain at the crown of the head shooting occasionally across the forehead and temples.*

Ninthly. There is often a pain in the integuments on one side of the head, when a foreign body, an insect, a pea, a stone, a roll of paper, &c. is lodged in the meatus auditorius externus. Du Verney relates an instance of this from Fabricius Hildanus: “ A young girl, twelve years
“ old, having by chance let a glass ball enter
“ into the hole of her left ear, which could not
“ be extracted by any means, was seized with
“ acute pains, which were communicated to the
“ same side of the head. These pains, after a
“ long space of time, produced a numbness in
“ the arm and hand, afterwards in the thigh and
“ leg, and at last in all the left side. This
“ numbness was accompanied with very great
“ pains, which increased in the night, and in
“ cold and wet weather, with an irregularity in
“ her menses, with epileptic fits, and with an
“ emaciation of her left arm. F. Hildanus,
“ eight years afterwards, extracted the glass
“ ball, and then all the symptoms ceased, to
“ which all the other remedies which were used
“ for so long a time, could not give the least
“ relief.”†

All the cases of pain in the ear, and in the integuments of the head do not end so favourably; for where the endeavours to extract a foreign body from the ear have forced it farther in,

* Medico-chirurgical Transactions. Vol. ii. p. 1.

† A Treatise of the Organ of Hearing, &c., by Mons. Du Verney. English Translation. p. 101.

a very violent pain has ensued, and death ; after which a caries of the petrous portion of the temporal bone has been found, and an abscess next it, communicating with the tympanum.

Inflammation in the meatus externus, whether occasioned by external violence, the extension of some cutaneous eruption, a cold, a fever, is very apt to extend to the internal ear, inducing caries of the bones and deafness, or fatal affections of the brain itself; and it is in almost all cases attended with a pain on the same side of the head.

The lining of the meatus auditorius externus is, perhaps, not a mucous membrane,* strictly speaking : but, whatever it is, it is possessed of great sensibility, as is every membrane so near to bone. Its nerves are from the superficial branch of the inferior maxillary, and from the second cervical pair, as well as from the portio dura of the seventh pair.

A discharge from the ear is generally an attendant on inflammation of the membrane lining the meatus externus. Mons. Lallemand has, however, seen cases of it, without any such discharge, but with a dull pain in the internal ear, and other symptoms, such as a depraved taste, nausea, and sometimes vomiting.

When a pain in the ear is attended with a discharge from it, or is followed by a discharge from it, whether there be herpetic ulceration of the meatus externus, or suppuration of the tympanum,

* Bichât, Anatomie Generale. Tome iv. p. 429.

Bichât, Anatomie Descriptive. Tome ii. p. 483.

num, there is often a pain in the integuments of the head on the same side ; and if the discharge stop suddenly, or be stopped by medicamenta exsiccantia, we are told, that the patient, whether infant or adult, is rendered somewhat deaf, or the discharge being turned inwards, falls into convulsive and epileptic fits ; and, therefore, that we should be contented with merely keeping the parts clean by washing them with tepid water. Mr. Saunders declares, on the contrary, that if the discharge be from the meatus externus, medicamenta exsiccantia are the only medicines which ought to be employed, and that they will not turn the disease inwards to the brain, but will cure it, and prevent deafness : he maintains also, with respect to suppuration of the tympanum, that the parts affected are too essential to perfect hearing to be neglected ; and he proves by the event of cases, that they may be healed without detriment to the constitution. He reasons on the subject thus : “ the brain can only
 “ be injured by the exposure and ulceration of
 “ the dura mater, and the application of substances capable of destroying the bone and
 “ dura mater can only be an act of madness, or
 “ ignorance. Injury of the brain is more likely
 “ to result from the continuance of the disease,
 “ than the judicious interference of art. For the
 “ puriform discharge naturally advances to ulceration, and ulceration to denudation and
 “ caries of the bone, and separation of the chain
 “ of bones. A caries of the tympanum is therefore ultimately produced. But this will destroy the bone, and expose the dura mater :

“ and if it were not for that principle, by which
 “ membranes that line cavities thicken as the
 “ neighbouring parts are ulcerating, and thus
 “ preserve their integrity, the brain would, per-
 “ haps, always suffer in the ultimate stage of the
 “ puriform discharge from the tympanum.”*

Although an inflammation of the ear often occasions a caries of the bones, and extends to the membranes of the brain, and to the brain itself; yet an inflammation of the brain seldom extends to the temporal bone, so as to make an opening into the ear. The instance of a living tumour in the brain, or in the pia mater making its way to the skin without the formation of an abscess was seen by John Hunter in a Highland soldier, in the Dutch service.† However, according to M. Lallemand, chronic inflammation of the brain is far more frequent from caries of the temporal bone than of any other composing the cranium.

Whenever there is a pain in the head, and a paralysis of any of the muscles of the face, as this depends upon an affection of the portio dura, whether there be any discharge or not from the ear, it should be carefully examined, For if the portio dura be affected in its course through the temporal bone, the affection of it may be extended to the cerebellum. Of this an instance is given by Mr. Shaw,‡ who tells us, besides,

* Saunders on the Anatomy and Diseases of the Ear. Edit. 8vo. 1817.

† A Treatise on the Blood, Inflammation, &c. p. 455.

‡ Medico-chirurgical Transactions. Vol. xii. p. 124.

what it is very useful to remember, that there may be a paralytic affection of the face, and a disease of the brain co-existent, and unconnected with each other, although from the same cause, for example, a fall on the head.

Tenthly. A pain in one half of the head is sometimes from pus collected either under the temporal muscle, so that the patient cannot open his mouth, or under the occipito-frontal, from whence it may make its way to a considerable extent.

CHAPTER III.

SYMPTOMS OF HEADACH.

I MAY now be expected to give a general description of Headach, properly so called: but how few are they who have not had a Headach? or who do not think that they have had it? and who, in reading what I could write, would not often exclaim, I knew this before? The general description of any disease is founded in particular histories of it, written by those, who often had it before their eyes, while their mind was yet warm with the contemplation of it.* The general description of a disease is, therefore, not a minute specification of all its symptoms, but a selection of only such as are most constant, most striking, and most resembling, in a number of individuals labouring under it.† It is, as it were,

* *Historia proprie Individuorum est, quæ circumscribuntur Loco et Tempore.* Bacon, de Augm. Scientiar. Lib. ii. cap. 1.

† Hence Huxham says, “I begin with a description of the “slow nervous Fever, which hath been very exactly taken “from too many who have fallen victims to this insidious “and dangerous enemy.” *An Essay on Fevers, &c.* Sixth Edition. p. 74.

an outline, drawn by an artist, the effect of which on those, who examine it, is the more lively and expressive, the more qualified they are to fill it up.* The general description of a disease has no relation to time, or place, or patient: the history of a disease has a relation to time, and place, and patient.

An abridgement of the description of any disease is, as it were, a definition of it; and an abridgement of the definition of any disease is, as it were, a general term.

All this I should have omitted, if it had not been for Maittaire's Eulogy of Aretaeus,† from which it may be inferred, that his writings consist in part of histories. The truth is, that Aretaeus gives the history of no disease: but he

* Quelque Degré d'Instruction est requis pour parvenir à la connoissance de la Vérité. Et certaines Vérités supposent beaucoup de connoissances acquises. *Essais de Philosophie &c.*, par Pierre Prevost. Tome ii. p. 125.

† Prefixed to Maittaire's Commentary on the Dialect of Aretaeus, is his Letter to Dr. Freind, in which he says " Quis
 " enim Author Editorem doctum meretur magis ac requirit,
 " quàm qui summam peritiam cum exulta dictionis elegantia
 " conjungit; rerumque, quas tractat, copiam ea verborum
 " brevitate complectitur, ut neque illa taedium, nec haec ob-
 " scuritatem pariat. Limatum est Aretaei in vocibus deli-
 " gendis judicium, egregia Ars in componendis; tam mira
 " demum in tradendis morborum naturis accuratio, ut credas
 " illum non tam scripsisse, quam pinxisse; imò potiùs Ae-
 " grotos ipsos tibi vivos coràm cernendos admovisse; ut vide-
 " aris non legere aut inani pictura oculos pascere, sed miser-
 " rimis illis decumbentibus interesse, varios illorum labores
 " intueri, clamores, gemitus, et suspiria audire; ut sentias te
 " pro diversis malorum, quibuscum conflictantur, generibus,
 " horrore concuti, et misericordia commoveri." p. 509.

scarcely omits any symptom that has ever occurred in a disease ; and in this is one of his excellencies. As for philosophical investigation, he contains scarcely any, which, if he had written histories, would probably have found a place in them, because philosophy is generally, if not always necessary in a historical narrative. Had Aretaeus been acquainted with the different textures, which enter into the composition of our organs, and with the symptoms belonging exclusively to every texture, how lucid an order, and how enchanting a vivacity might he have imparted to his details ? But the fulness of his descriptions is one only of his excellencies : another is his omission of scarcely any circumstance, which may contribute to a patient's comfort and recovery. His particularity, in this respect, surpasses, I believe, that of any preceding, and of any succeeding writer. Caelius Aurelianus, although commendable, in this way, is vastly inferior to Aretaeus. Then, the choice of Aretaeus's words, the turn of his expressions, the perspicuity, the brevity, the art to conceal his art ;—but I will not aspire to blazon the fame of Aretaeus.

Instead of a description of Headach then, I shall make a short comment on those signs only of Cephalaea, which are selected by Celsus : and I shall follow the order, in which he has placed them ; because to distinguish Cephalaea from other Headachs presupposes a knowledge of its symptoms separately considered. For it is as impossible to tell what a combination of symptoms means, unless the signification of the symptoms composing it be known, as what a sentence

means, unless the signification of the words composing it be known. But there is another advantage derived from a thorough knowledge of symptoms, which is, that it enables one to discover what symptoms are compatible with one another, which it is often very necessary to do on occasions, which I shall not here name. The intellectual analysis of a disease is the seeing of it in detail: it consists in fixing the attention successively on all the symptoms, in order to give them in the mind that simultaneous order, in which they really co-exist. He, therefore, who has ever fairly analysed a Headach, will easily apply the result of his analysis, as a principle by synthetical reasoning to the symptoms of other Headachs which may occur. Nor will it escape him, that the signs enumerated by Celsus, as belonging to Cephalaea, have the same relation to the whole of this disease, as the most striking, and predominant parts of a landscape have to the whole of it.*

Celsus expresses himself thus: In capite autem interdum acutus et pestifer morbus est, quam κεφαλαίαν Græci vocant, cujus notae sunt Horror validus, nervorum Resolutio, Oculorum Caligo, Mentis Alienatio, Vomitus, sic ut vox supprimatur; vel sanguinis ex Naribus Cursus, sic ut Corpus frigescat, Anima deficiat. Praeter haec, Dolor intolerabilis, maxime circa Tempora, vel Occipitium.

Interdum autem in Capite longa Imbecilitas,

* La Logique, ou les premières Developpemens de l' Art Le panser, par M. l' Abbe de Condillac. Partie. i. chap. ii.

sed neque gravis, neque periculosa, per Hominis Aetatem, est.

Interdum gravior Dolor, sed brevis, neque tamen mortiferus, qui vel Vino, vel Cruditate, vel Frigore, vel Igne, aut Sole contrahitur.

Hique omnes Dolores modo in Febre, modo sine hac sunt: modo in toto Capite, modo in Parte; interdum sic ut Oris quoque proximam Partem excrucient.

Præter hæc etiam invenitur genus, quod potest longum esse: ubi Humor Cutem inflat, eaque intumescit, et prementi Digito cedit *ὕδροκέφαλον* Gracci appellant.

And again, in allusion to this last kind of Headach, he says, Dissimile est id genus, quod Humorem in Caput contrahit.*

* The Baron Van Swieten, whose mind was stored with various learning, and to whom the medical science of his time was familiar, contends that Celsus knew nothing of the Dropsy of the ventricles of the brain; as if *in Caput* should be englished *upon the Head*, not *in* or *within* the Head: but although the preposition *in* may not here denote motion to a place, yet it is not uncommon in the best Latin writers to find the accusative case after it: *numerō mihi in mentem fuit*. *Plant. Amphitr. Act. i. Sec. i.* Ille ubi miser famelicus videt me esse in tantum honorem. *Ter. Eun. ii. 2. 29.* *Esse in Amicitiam Populi Romani.* *Cic. I. verr.*

Professor Whytt likewise affirms, that *ἐπὶ* cannot be rendered *in* or *within*; and therefore, that Hippocrates does not notice the Dropsy of the ventricles of the brain: but the symptoms, as the Coan enumerates them, and as he expresses them, do not convince me that he does not notice it. And I am inclined to think, that *ἐπὶ* may be rendered *in* or *within*, and *under* as well as *upon*. In our Creed we read that our Saviour suffered under Pontius Pilate, *ἐπὶ Ποντίου Πιλάτου*.

From Celsus's Collocation of the signs or symptoms of Cephalaea, some may conclude, that a violent horror is the first of them, in the order of time ; but it certainly is not. There is no more early sign than an *intolerable Pain in the Head* ; and no more prominent, inseparable, and diagnostical sign, if a disease be a regular conjunction of symptoms, a whole indivisible from beginning to end. Hence it is, I conceive, that Celsus enumerates the other signs, before he mentions the intolerable pain as being before them, or as being above them in importance, and as being obvious, for all signs, strictly speaking, are addressed to either the eye, or the ear, that he may the better secure for it that place which, to use the language of painters, may give it the highest relief.* Celsus does not say, that Cephalaea begins with a violent horror.

It has been stated more than once, that by an intolerable pain, Celsus means, not a great, or an acute pain. A sudden and violent pain of the head very seldom attends an incipient Cephalaea : for in this Headach, the pain generally

And what can be more natural than that, telling what the Greeks did, Celsus should imitate their very expression ? When Celsus wrote *Humorem in Caput contrahit*, I have no doubt that he had in his mind the very words of Hippocrates ; ἤν ὑδωδ ἐπὶ τῷ ἐγκεφάλῳ γινηται ; for there is a parallel clause in Dionysius Halicarn. κινήσεις ἔγενοντο ἐπὶ τῇ πολει.

* *Praeter haec dolor intolerabilis, &c.* Although *praeter haec* for *praeterea* belongs to the silver Age, and is often put for it by Celsus, yet I doubt that it is put for it in this affirmative sentence. I would therefore consider it as synonymous with *maximé, supra, or prae*. *Praeter* is the comparative of *prae*, as *inter* is of *in*.

becomes violent by degrees. If, therefore, a violent pain in the head be felt on a sudden, and the breathing be extremely irregular and labour-ed, there is reason to expect either apoplexy in a few hours, or palsy of one side.

The *violent Horror*, to which Celsus alludes, is, I presume, not such as ushers in fever, or adhesive inflammation, or as takes place with the disposition to suppuration, or as recurs at stated periods. No chilliness attends it; no increase of heat, no greater frequency and fulness of the pulse follow it. It is confined to the upper part of the body: which is in a profuse perspiration. Therefore it depends, perhaps, upon a shock received in the very centre of the nervous system, which is instantly felt in its whole extent, as when a portion of the brain is suddenly removed in any of the mammalia. Perhaps this horror, or tremor of the muscles is a convulsive effort of nature, of a salutary tendency. Portal says, that convulsions in apoplexy are so, and I can readily suppose them to be so. For in cases of Asphyxia from submersion, when the inflation of the lungs has been persisted in for some minutes, convulsions becoming stronger and stronger have been observed to precede the return of natural respiration.

Besides an emetic, the perfusion of cold water upon the head, a catarrh, and sneezing, have all cured Headachs: and Sauvages says, that Homberg cured a Headach by setting the patient's head on fire.

The subsequent paroxysms of Cephalaea I

have known to be attended in the beginning with a tremor of one arm only, which soon became weaker than the other, or numb, or paralytic. In some cases, while one arm was thus affected, and the affection seemed always to begin in the extremities of the fingers, the other arm was, more or less agitated by convulsions. In such cases, I always suspected that some disorganization was taking place within the cranium, although no acute symptoms had yet denoted it.*

Nervorum Resolutio. That a paralytic affection should follow such a horror, when it is an ineffectual effort of the vis medicatrix et conversatrix naturae, seems to me, natural enough; but not so to the learned Dr. Grieve: for, he says, “*Resolutio nervorum*, Celsus commonly “uses for a palsy, yet he cannot intend that here, “but a langour or slight relaxation of the solids.” If, however, so correct a writer as Celsus had meant any thing different from palsy here, would he not have said so; as when he speaks of apples, in particular, (for he calls cherries and mulberries, as well as apples, *poma*,) he says, *quæque proprie Poma nominantur*?

Vossius neither annexes any other meaning to *Resolutio Nervorum* than palsy, nor cites any other authority for doing so, than Celsus’s.† If Celsus, therefore, commonly uses *Resolutio*

* Nic. Tulpæ Observ. Medic. Lib. i. cap. 12. also cap. 23.

† Paralysis, *παράλυσις* est *Nervorum Resolutio*, ut Celsus vocat. Lib. iii. cap. 27. a *παράλυναι*, quod est *resolvere*. Vossius, *Etymologicon Ling. Lat.* Vossius might have referred to Celsus. Lib. ii. cap. 1. where he says, *Resolutio Nervorum*, quam *παράλυσιν* Græci nominant.

Nervorum for palsy, this alone is, I think, a reason, that he cannot here intend any thing else : for it will scarcely be denied, that the precise and appropriate meaning of any Author's words and phrases is most certainly ascertained by his own common use of them.

As for Dr. Grieve's supposition, that the word "Languor" expresses the meaning of Celsus better, in this place, than the word palsy does, as languor is felt in the voluntary muscles, not in the involuntary, I can find no foundation for it :* neither am I more satisfied with Dr. Grieve's other translation of *Resolutio Nervorum*, "a slight relaxation of the solids :" for what an absurd analogy does the fancy suggest, when such language is applied to a living body ? When, for example, the illustrious Commentator on Boerhaave's Aphorisms, compares a paralytic muscle to several stones bound together by a ring, which stones fall asunder as soon as the ring is loosened, is his similitude argumentative ? It is not so to my comprehension. But he would prove by it, that palsy is the lax immobility of a muscle, or that it depends upon such a laxity in the fibres of a muscle, that it is no longer capable of being set in action by the will : † and yet it is very well known, that a muscle is not paralytic, be-

* *Languor ἀφεςις*, nihil aliud est quam Corporis, aut Membrorum ejus veluti Dissolutio et Remissio, cum non aliter ac resolutis sive paralyticis dissolutae appareant. Castellus, *Lexicon Græco-latinum*.

† Boerhaave's Definition of Palsy is this : *Paralysis vocatur Musculi laxa Immobilitas, nullo nixu voluntatis, vel vide superanda. Aph. 1057.*

cause it is lax ; but that the laxity and the diminution of the muscles of a paralytic limb are consequent to its palsy, and never antecedent. A limb may, therefore, be paralytic, without its muscles being lax : and it is so in the beginning, although its temperature is diminished ; although it is more disposed to partake of the temperature of surrounding bodies ; although it cannot bear with impunity unusual degrees of heat or of cold ; although it is disposed to ulcerate ; and although, when ulcerated, the power of restoration in it is diminished. - It is without a sufficient reason then, that the very learned Baron attributed the palsy of a leg to a conversion of its muscles into a confused mass, resembling the contents of a steatoma.

In 1813, I noticed such a conversion of almost all the muscles, serving for voluntary motion, in a sheep :* but I had at that time forgotten, that any thing of the same kind had occurred in the human subject. My friend, Sir Astley Cooper, however, favoured me with a

* See a little pamphlet with this title : “ Some Account of an uncommon appearance in the Flesh of a Sheep, &c.” printed for John Harding, No. 36, St. James’s-street. On the subject of this pamphlet, I was honoured with two letters by Sir Joseph Banks, who was then the President of the Royal Society ; one requesting “ a sample of the curious Mutton ;” and another acknowledging its safe arrival, containing Sir Joseph’s opinion of it, as follows :—

“ DEAR SIR,

“ Allow me to return you my best Thanks for being put
“ in possession of what I esteem a Curiosity, interesting in
“ the extreme both to the Farmer and the Physiologist. I
“ received it last night in good condition, &c. &c. &c.

“ JOS. BANKS.”

letter on the subject, in which, he says, “ I have
 “ thrice seen a similar change in the human sub-
 “ ject to that which you have described in your
 “ sheep, and under the following circumstances :

“ First, the musculus semi-membranosus of
 “ a subject, (otherwise perfectly healthy, and all
 “ his other muscles red) apparently useless, and
 “ white, or rather yellow.

“ Secondly, muscles of a limb long out of
 “ use from Paralysis similarly changed.

“ Thirdly, the muscles of a club-footed per-
 “ son, which had never been employed, con-
 “ verted into this yellow matter;

“ Fat at first seemed to occupy the place of
 “ muscle in all these cases: but still its texture
 “ differed from that of adeps: for it appeared
 “ fasciculated.

“ I had not an opportunity of injecting the
 “ limb in these cases, but will take the first op-
 “ portunity that offers, as the vessels of the part
 “ appeared to me to have almost disappeared.”

But to return from this digression. There
 can be no doubt that, if the muscles of a limb
 have lost that power of contractility, which
 is their characteristic property, the voluntary
 motion of that limb is as entirely lost, as if its
 muscles were removed: but from every thing
 that I have been able to learn, it seems that the
 power of the muscles is not at all diminished
 either in palsy, properly so called, or in apo-
 plexy; so that, in these diseases, the muscles
 do not cease to obey the mandates of the will,
 because they are unable to obey them, but be-
 cause the mandates of the will have ceased to be

conveyed to them. The only stimulus of the voluntary muscles is the nervous influence ; and this is directly sent to them from the brain, or spinal marrow,* by the will.

John Hunter, alluding to the practice of stimulating paralytic limbs, shrewdly remarks, that we may with exactly the same propriety stimulate the fingers, when their muscles are torn to pieces.

But not to lose sight of some paralytic affection being a sign of Cephalaea, I never saw an instance of this disease without palsy. What is more common in Cephalaea than a torpor of the hands, an impediment of speech, a palsy of the Levatores Palpebrarum, and Iris? In short, I have somewhat like conviction, that Cephalaea and Cephalalgia have a relation to each other, like that of cerebral to meningeal apoplexy ; in the former of which there is always some degree of palsy. It should, however, be remembered, that not only the portio dura of the seventh pair of nerves after it has emerged from the stylo-mastoid foramen, but also some branches of the fifth pair may be affected in their course, and even in their passage through the bones, without the brain being so, for a Cephalalgia may be mistaken for a Cephalaea.

Even Hemicrania, if it be a Cephalaea, is attended with palsy or convulsion.

I have seen many instances of Cephalaea in which there were both palsy and convulsions,

* See Cuvier's Analysis of Fleurens's Experiments in Ann. de Chimie et Physique. Tome 20.

sometimes of the same part, alternating with each other, but sometimes of different parts.

They who admit John Hunter's doctrine, "that no two actions can take place in the same constitution, or in the same part, at the same time;" and who are aware, that the higher degrees of sensation, and of volition, are incompatible with each other, a position which the late investigations of Mr. Charles Bell, into the distribution and uses of certain nerves, confirm and elucidate, will not wonder at palsy and convulsions alternating with each other; nor at Dr. Darwin having put both in one class, entitled "Diseases of Volition." However, although I believe that sensation and volition are in opposite directions, yet I can see no reason to ascribe an objective existence to ideas, to assume that ideas are material, and to consider Thought and the modifications of it, as vibrations of ideas: but this I would say to those only, whom the mention of Dr. Darwin may lead to a perusal of his very ingenious, although very hypothetical Physiology.

Need I remind any medical reader of what is now so well known, that if the brain be injured or diseased, and paralysis be the consequence, this paralysis is very seldom on the same side as the disease or injury of the brain; but that if the spinal marrow be diseased or injured, the paralysis is on the same side? That the power of transmitting impressions productive of sensation is in the posterior roots of the spinal marrow, and the power of exciting motion in the anterior roots? and that, if a nerve of sensation be

divided, the part to which it imparted sensibility, becomes insensible, as the division of a nerve of voluntary motion renders the muscle, to which it went, paralytic?

Oculorum Caligo, in Celsus, I take to be an expression of great extension, and to stand for almost every disorder of vision, in which there is no organic change either in the coats of the eye, or in its humours, or in the capsules of its humours. There is no Headach so often attended with caligo as Cephalaea, whether this caligo depend upon an affection of the optic nerve, or of any of the other nerves, which enter the orbit.*

The dull appearance of the eyes in Headach is very remarkable, and depends, perhaps, in part, on a deficient secretion between the laminae of the cornea; in part on the drooping condition of the upper eye-lids; and in part on the retraction of the eye-balls into the orbits. The eye-balls are not sunk into the orbits, because the adeps, in which they lie embedded, has been absorbed, as is the case in emaciated persons; but they are drawn back into them by the concurrent action of the four recti muscles. These muscles begin to act, as soon as the Headach begins: and when the Headach ceases, the eyes in an instant resume their usual situation.

As I have shown, or have endeavoured to show, that Headach may be attended with too little blood in the head, as well as with too much, so a mere caligo may, perhaps, exist when there is too little blood in the head, as well as when there

* See Mr. C. Bell's two Papers in the Philosophical Transactions for 1823.

is too much. The blindness from fainting, and the dimness of sight in aged persons should seem to be owing to too little blood in the central artery of the retina : the blindness from vomiting, from pregnancy, and from parturition to too much blood there.

If *Caligo Oculorum*, and redness and itching of the forehead, or of the whole head, accede to pains of the head, these pains are removed by a flow of blood, whether this be spontaneous or not.*

Celsus notices the affection of one sense only in *Cephalaea* : but hearing, smelling, and tasting may all be affected in it. When Celsus treats of sounds in the ears, he mentions a dullness of hearing after pains of the head of long duration.† Of all the organs of sense, the ear is the most complex ; and more are deprived of this sense from birth, than of any other. According to my experience, deafness is a very common occurrence in *Cephalaea*, and is ushered in by noises in the ears, when the patient is not yet deaf, but seems to be so, because the noises divide or engross his attention.

According to Hippocrates, if there be a ringing in the ears, with slowness of speech, and torpor of the hands, we may expect the Headach to be converted into apoplexy, or epilepsy ; and if there be deafness, with eruginous vomiting, we may expect the Headach to be followed by insanity.

* Celsus. Lib. ii. cap. 8.

† Celsus. Lib. vi. cap. 7. § 8.

It is difficult, if not impossible, to account for noises in the ears. Such noises as sometimes attend the end of typhus, with a degree of deafness, should seem to depend in a great degree on the rush of arterial blood through some part of the vascular system of the ear : for I have known those, who could number with accuracy the pulsations at their wrist, in a given time, by counting the corresponding beats in their ears, or the corresponding increments of sound. But, if any rush of blood could alone produce all the noises, which are at times referred to the head, and sometimes to the ears, they should occasionally occur to every one in health.

I can fancy, in a *Cephalaea*, when the patient cannot catch the articulation of sound in the monotony of common conversation, and when he is distressed by noises in his ears, that the auditory nerve has undergone some change, either at its origin or at its termination ; and that in the latter case, it conveys a different impression than usual, and that in the former case it receives impressions, which are felt more acutely ; but fancy what I will, how can I account for it, that there is no cry of animals, no sound occasioned by the motion of air, of water, &c. by the rustling of wings, by the rattling of paper, of parchment, of leaves, of silk ; by the ringing of bells, by the clank of chains, &c. to which those, who have a *Cephalaea*, or even the predisposition to it, do not sometimes compare the noises in their head ? How can I account for it, that patients with *Cephalaea*, and so deaf as not to enjoy conversation among strangers, at the crack of a whip, at the

fall of a cinder from the fire, at the scream of any animal, in short, on every occasion, when any clang, any noise is made, in which there are many vibrations, feel sometimes as if their tympanum were suddenly burst, or as if a sword were thrust through their brain?

It has been my misfortune to know many such patients, and to witness the signs of their mental distress, while dreading every noise, they were ready to conjure up as much evil, as if they expected to hear

On a sudden open fly
With impetuous recoil, and jarring sound,
Th' infernal Doors, and on their Hinges grate
Harsh Thunder.

I have seen them motionless, speechless, pale, aghast, and losing for a second or two their very consciousness: and I have watched their recovery, and listened to them breaking silence, when their expression was slow and almost metrical, and their very words were such as flow from grief and melancholy.

How can I account for it, that some patients with a Cephalaea have an increasing susurration or jarring sound in their ears, whether their pulse at the wrist be accelerated, or not? How can I account for it, that some of them have that complex sensation, the musical, and detect in an instant the slightest error in music, and then suffer an interruption of that ease, which music had afforded them? The analysis of the sensation of music must be very difficult; the pleasure derived from it consists in a perception of the numerical relations of its constituent parts, which are

melody, harmony, and rhythm. How can I account for it, that some hear music, where there are no combined and succeeding sounds to be appreciated? I have known a patient who, having for years from his infancy heard the 104th Psalm chimed daily, could scarcely be persuaded that it was not chimed constantly; and that even in the intervals of the paroxysms of his Headach. How could I be present at such scenes, and not be thinking of the diseases of the carotid and vertebral arteries, ossification, aneurism, &c.?

Bichât is of opinion, that the ramifications of arteries are not so frequently the seat of incrustations; and that the capillaries are never the seat of them. And assuming this as a fact, he concludes, that the inner coat of the arteries does not extend into the capillaries, but degenerates by degrees into a different texture.* But Mr. Hodson relates a case, in which “all the arteries, “both the larger ones on the basis of the brain, “and their minute ramifications on the pia mater “were extensively diseased. In some places, “their cavities were obstructed by a deposition “of atheromatous matter between their coats; “and in others, they were converted into complete tubes of a calcarious structure, the section of which afforded a wiry sensation.”†

Ossified arteries, as they are called, although rare in young persons, ossification not beginning till the seventh or eighth week after con-

* Anatomie Generale. Tome ii. p. 294.

† A Treatise in the Diseases of Arteries and Veins, &c. page 27.

ception,* have nevertheless been found in some infants, the ossification of whose bones was not far advanced.† But nothing like bone in appearance and composition is, I believe, ever detected in arteries,‡ nothing like cartilage.

There are many reasons, that persons far advanced in years should be deaf in some degree, even if they have no Headach: as their Dentes molares, which are better conductors of the impressions occasioning Hearing than either air or water, being carious, or loosened, or lost, the alveolar processes having been absorbed; the very vascular membrane lining the labyrinth receiving less blood, and secreting less of the liquor Cotunni, which should fill the labyrinth, to convey to the expansion of the auditory nerve within it, the vibrations of sonorous bodies from the membrana tympani, through the medium of the little bones of the ear; the auditory nerve itself,

* D. Jo. Frid. Blumenbach. Instit. Physiologiae §. 642.

† Portal, Anatomie Medicale. Tome iii. p. 133.

‡ The Concretions alluded to, according to Mr. Brande's Analysis, consist of only

Phosphat of Lime	-	-	-	65	5
Animal matter	-	-	-	34	5
				100	0

Calcined human Bones, according to Berzelius's Analysis consist of

Phosphat of Lime	-	-	-	81	9
Fluate of Lime	-	-	-	3	0
Lime	-	-	-	10	0
Phosphat of Magnesia	-			1	1
Soda	-	-	-	2	0
Carbonic Acid	-	-	-	2	0
				100	0

in the labyrinth, having undergone some change, so that it is less susceptible of those impressions, which give rise to sensation, &c.

When Dr. Saunders had left London, and had retired to Enfield, he invited me there to see him : and in a letter, describing his sufferings, he says, “ I am very susceptible of sound and noise, but “ deaf to articulation. A trumpet gives me pain, “ by making the sound too loud. I have a very “ irritable head, and the most unpleasant noise “ in my best ear from eructations, or even mo- “ tions of the body. My sight is good. The “ paroxysms of excessive noise are accompanied “ with a tensivity of the muscles and vessels of the “ scalp, so that every external part is as tense “ as a drum : after which a relaxation takes “ place, and seemingly a diminution of the bulk “ and size of the head.”

As to smelling, like every other sense, if the nerves, upon which it depends, the first pair, be not paralytic, it is generally too acute in Cephalaea : but it is so also in other Headachs.

It is difficult to account for this ; but I take it to be a fact ; and I know that Headachs are more frequent in the morning, and again in the evening, at both which times the pulse is slow and weak ; and that they generally cease or remit at mid-day, when the pulse is quick and strong.

Morgagni relates the case of a noble Lord, subject to fits of the epileptic kind, beginning from the hypochondria, and preceded by the sense of a fetid smell, although the breath of his mouth and nostrils was not at all fetid to bye-standers.

Morgagni supposes in this case, that a branch of the intercostal nerves being irritated in the hypochondria, an impression is communicated to the membrane of the nose, like that excited by fetid effluvia, not the first pair of nerves communicating with the intercostals, but with the fifth, branches of which are distributed in the mucous membrane of the nose.*

Some women judge that they are pregnant earlier from a depravation of smell, than from any other circumstance; and then, if they have no Headach, they are, I believe, very likely to have it, and also puerperal convulsions.

Hysterical, hypochondriacal, and catarrhal patients, when they have a Headach, frequently complain of something stinking near them, till they find that their smell is depraved.

Mr. Shaw says, that in three cases, in which a deposit of bone was found in contact with the olfactory nerves, the patients had suffered much for a considerable time, previous to death, from the sensation of unpleasant odours.

Some have been able to smell with one nostril only, because the passage of the olfactory nerve through the cribriform plate of the os ethmoides was obstructed on one side by an oblique position of the crista galli.

As to taste, I have often known it to be disordered in Cephalaea, increased, diminished, or perverted; and, I think, I have known it so in other Headachs.

* De Sedibus et Causis Morb. Epist. xiv. §. 28.

The reader knows, that taste belongs to the fifth pair of nerves, the motion of the tongue to the ninth pair, and swallowing to the glosso-pharyngeal nerves.

Mentis Alienatio is set by Celsus among the signs of Cephalaëa : but Mons. Pinel calls his Book on Insanity, *Traité sur l'Aliénation mentale*. Shall we, therefore, suppose that Celsus means Insanity ? Dr. Grieve puts Delirium for the *Mentis Alienatio* of Celsus : but I never knew a Headach in which the patient did not know his friends. If the word Delirium had better expressed Celsus's meaning, he would, no doubt, have used it here, as he does elsewhere. For example : *cui Calor et Tremor est, Saluti Delirium est.** I have known several instances of Cephalaëa, and of Cephalalgia followed by insanity : but when the insanity began, the pain in the head ceased : therefore, the Headach ceased. These were, I suppose, cases of Headach converted into insanity. I never knew a case of Headach, in which the patient's imagination was at all employed.

I have said, that in Cephalaëa, it is painful for the patient to think ; and, therefore, that he avoids both it and speaking, as much as possible. I shall now add that, if he be obliged to think, and to return an immediate answer, his earnestness to have finished a painful task may incline him to make his speech keep pace with the quickness, with which his thoughts are generated ; so

* See Pinel's Definition of Delirium. *De l'Alién. Mentale*. Sect. 111. iii. §. 176. Pinel properly considers melancholia and Mania as Species of Insanity, not as Genera.

that in his solicitude to convey his meaning, he attends so little to his words as often to put one for another. I have many times known persons to do so, and instantly to correct themselves, which they could not have done, if they had been delirious. They did not mistake one thing for another; neither did they form to themselves vain images; which they would have done, if they had been insane. They had, perhaps, an alienation of their mind from invention; or rather an aversion to the intension of their mental faculties, and even to the exercise of them.*

Vomitus. After mentioning an intolerable pain in the head, a violent horror, a palsy, a disorder of vision, and an alienation of mind, Celsus adds, as I understand him, and either vomiting, so that the voice is suppressed, or a flow of blood from the nostrils, so that the body becomes cold. Cephalaea may have been a more desperate disease, where Celsus saw it, than it is in our climate: but he can neither intend the antecedent to loss of voice to be the mere vomiting, nor the antecedent to coldness of the body to be the mere bleeding from the nose; but, in both cases, the conjunction of all the preceding symptoms.

Vomiting is an act performed chiefly by the diaphragm, the muscles of the abdomen serving rather to keep the viscera of the abdomen in their proper place: and the stomach has no more to do with vomiting, than the lungs have with cough-

* See the word *Alienatio* in Nizolius, sive Lexicon Ciceron. Cura Facciolati.

ing. This is the doctrine of John Hunter : and it is confirmed by Mons. Magendie, who has shown, that vomiting may in some manner take place, without a stomach ; the stomach being so little concerned in vomiting, that a hog's bladder, substituted for it, answers just as well. Mons. Magendie's Memoir was read to the Imperial Institute of France, March 1, 1813, and was pronounced by M. M. Cuvier, Pinel, Humboldt, and Percy, all of them aware that birds and other animals without a diaphragm vomit, destined to be for ever cited in physiological works.

According to Mons. Magendie, vomiting is produced by an affection of that part of the medulla oblongata, from which the eighth pair of nerves arises : for if that part be disorganised, on both sides, tartarised antimony, whether taken into the stomach, or injected into the jugular vein, occasions neither vomiting, nor the sensation of vomiting.

The vomiting in *Cephalaea* is frequent, and is at the first of a green bile, together with the contents of the stomach. But if the patient do not vomit, he is sick and inclined to vomit on rising from his seat, on sitting down, and on moving his body or his head. In the progress of *Cephalaea*, what is vomited is sometimes black, and such vomitings perhaps show, that their cause is at the origin of the par vagum or pneumo-gastric nerve. Besides, as the patient has no inclination to sleep, if nervous vomitings be attended with deafness and a trembling of the hands, they are a dangerous sign, and sometimes precede the conversion of *Cephalaea* into insanity.

Eruginous vomiting never occurs in other Headachs, or in the pains, which being seated externally, are improperly called Headachs : for if the patient vomit in these, the matters first ejected are not even tinged with bile : nor does bile appear, till the stomach has been entirely freed from the food that was in it.

This vomiting depends, perhaps, upon an impression on the nerves of the stomach, which is communicated by them to the origin of the par vagum : for when the nerves of the par vagum going to the stomach are divided, the irritation occasioned by the division is communicated to their origin, and generally causes vomiting ; so that since the muscles of respiration, as well as the stomach, receive their nerves from a common source, it is easy to conceive how an emetic, taken into the stomach, produces vomiting.

The impression on that part of the medulla oblongata, which gives origin to the par vagum, must be different in the vomiting of Cephalaea, from the impression on it, which excites vomiting, when an emetic has been either taken into the stomach, or injected into the jugular vein. The former impression must be more like that, which sometimes produces obstinate vomiting in apoplexy ; and may possibly be connected with disorganization, or with the tendency to it. Vomiting from an emetic, must be more like vomiting in simple concussion of the brain, when it is always a good sign. Spontaneous vomiting is allowed by all to be a good sign, when it may remove that affection, upon which it depends, and cannot increase it.

I have, I think, seen cases of Cephalaea, in which hiccupping for days, and even weeks, was vicarious of vomiting, as it is sometimes when a stone is irritating one of the kidneys or ureters.

Vox supprimitur.* Does Celsus mean, that a patient with Cephalaea will not speak, that he is silent by intention, or that he cannot speak? A loss of voice in Cephalaea presupposes sometimes pressure or disorganization at the origin of the eighth pair of nerves, as it does in apoplexy likewise; the recurrent branches of those nerves being the true vocal organs. Galen knew a loss of voice from opium introduced into the ear to cure a pain of it. Strammonium infused in wine, Belladonna, and Hyoscyamus have all produced aphonia. Soëmmering, Scarpa, and Portal, all of them, attribute the loss of voice, occasioned by the ingurgitation of inebriating liquors, to the pressure of the distended vertebral arteries on the ninth pair of nerves: but this loss of voice generally ceases, as soon as the subject of it has recovered from his drunkenness, although Portal has known it not to cease then.

But if the recurrent nerves, or the par vagum be divided in the neck, on both sides, the voice

* Groaning, *Gemitus*, is not Voice, *Vox*. Caesar received three and twenty wounds uno modo ad primum Ictum Gemitus, sine Voce, edito. Suetonius Tranquillus de XII Caesaribus. Lib. i. §. 82. Neither is voice Speech: Voice is that appreciable sound which is produced by the vibrations of the air driven from the lungs through the Glottis: Speech is voice modified by the motion of the tongue, the lips, and other parts of the mouth. Speech may be lost although voice remains.

is lost : it has, therefore, been lost by the removal of tumours from the neck, by luxations of the arytenoid cartilages, &c.

When the voice is lost from a disease of the brain, it is a dangerous symptom ; as it is also, when it is lost from debility. It may be lost when there is no sign of plethora, and no reason to suppose any pressure within the cranium, from spasmodic affections of the Larynx, and from affections of very distant parts, by sympathy, or by causes that prevent the full dilatation of the lungs. Thus, hysterica, epilepsy, and gastric and verminous diseases are often attended with a loss of voice. Aphonia during pregnancy is generally cured by parturition.

Difficult Menstruation is sometimes attended with a loss of voice, which is perhaps owing to some affection of the ovaria. Every one knows the change of voice at the period of puberty ; and that some birds whistle during the pairing season only, when their testes are enlarged, although in winter they are shrunken to almost nothing. And every one may have heard of the occasional swelling of the testes, when the glands of the neck are swollen, in cynanche parotidea, or mumps. Hysterical women are very subject to loss of voice ; and in most cases of Hysteria, the ovaria are said to be diseased.

Tulpins tells us of a Brabant merchant, who was every spring so shockingly tormented with a Headach, that he could scarcely open his eyes, or speak a word, although loquacious and turbulent at other times.* Was his voice voluntarily

* Observat. Medic. Lib. I. cap. 13.

suspended ? This is uncertain. Was his voice suspended by consequence of a violent effort to relieve his pain ? I do not think so. If history abounds in examples of spasmodic affections originating in violent voluntary exertions to relieve pain, in Headach, the patient makes no voluntary exertions.

Sanguinis ex Naribus Cursus. This I would translate a dribbling of blood from the nostrils, because where Celsus speaks of such a discharge of blood from the nose as relieves a Headach, he calls it *Sanguinis Profusio*, or says *Sanguis Pro-rumpit*, or employs similar expressions ; and because Caelius Aurelianus, who places, as Celsus does, a bleeding at the nose among the signs of *Cephalaea*, calls it *Sanguinis è naribus parvis-simus Guttarum Fluor, nihil relevans*. Neither Aretaeus, nor Galen, nor Lommius, nor Hoffman, nor Burserius, has any thing concerning such a bleeding in Headach : and Hippocrates remarks, that in all diseases, it is a bad sign. It is, perhaps, like the bleeding from the nose at the end of diseases of the heart, and lungs, and liver, depending upon, what Bichât calls, a diminution of organic sensibility, and of insensible organic contractility in the exhalants of the mucous membrane. There is no increased momentum of the blood, which is not as it is in inflammatory diseases, of a scarlet colour, but of a dark red, and coagulates as it flows.

Corporis Frigus. Nobody can suppose, that the coldness of the body depends upon the loss of blood in *Cephalaea*, or upon any other cause than the flow of blood does. But I need not

dwell upon this subject ; for it has been known from time immemorial, that whether the blood trickle down, or gush out in a continued stream, if it be attended with a coldness of the body, or a cold and clammy sweat, it is a bad sign.*

Animae Defectio. Galen asserts, that a person never faints from the pain of Headach. By fainting is perhaps to be understood, a more or less sudden and entire suspension of all the mental functions, and of the functions of the heart and lungs, all the muscles of voluntary motion being flaccid, and all the joints flexible, the face pale and Hippocratic, the extreme parts cold, and the temples bedewed with a clammy sweat. This, I am aware, is not Cullen's definition of fainting : but Cullen comprehends in the term Syncope, other diseases, which he calls degrees of it ; and he does not sufficiently distinguish it from Epilepsy and Hysteria, in both which the pulse is always to be felt, the face is always flushed, and swollen, and the muscles, those at least of the fingers, or of the lower jaw, are always convulsed.

Hoffman says, that there are three kinds of deliquium animi ; and confines the term Syncope to the highest or worst kind, in which there is no appearance of either tremour or convulsion.† But Celsus allows that convulsions of the legs and

* See the Prorrhēt. and the Coacae Praenot. of Hippocrates.

† Siquidem omni Sermonis Usu privati subitō corruunt, alto quasi Sopore oppressi, absque Convulsionis aut Tremoris Apparentia immobiles jacent. F. Hoffmanni Medic. Ration. Syst.

hands may concur with his *Animae Defectio* :* therefore, his *Animae Defectio*, and Hoffman's *Syncope*, cannot be the same.

In my opinion, when Celsus says, *anima deficit*, he means no more than that sudden diminution of the sensorial, the nervous, and the muscular powers, which is common to the end of all diseases of debility, when the patient feels a sensation of fluttering and of sinking somewhere about the solar plexus, and manifests by his paleness, his coldness, his slow and weak pulse, and his frequent sighs, that he is alarmed lest he should be unable to continue his respiration.

* Celsus says in his chapter on Cholera, *Praeter ea vero, quae supra comprehensa sunt, saepe etiam Crura Manusque contrahuntur, urget Sitis, anima deficit : quibus concurrentibus, non mirum est, si subito quis moritur.*

What he means by *contrahuntur*, he renders clear by saying: *Frigus modo nervorum Distensionem, modo Rigorem infert : illud σπασμὸς, hoc τέτανος Graece nominatur. Lib. ii. cap. 1.*

CHAPTER IV.

KINDS OF HEADACH.

As for the division of Headachs into bilious, nervous, spasmodic, gouty, rheumatic, &c. as every one of these epithets contains a hypothesis, which I do not understand, and which I am persuaded, nobody else does, I shall not enter into a formal refutation of it: but I would ask those, who affect to reason so consequentially of a bilious Headach, what they mean by it? Is it a Headach depending upon a redundance of bile, or upon an alteration of its qualities? * If it be, where in the body of a patient must the bile be,

* Ou donne le nom de maladies bilieuses aux affections qui dépendant de l'Abondance et quelquefois de l'Alteration des Qualites de la Bile. Nysten's Dictionnaire de Medecine, &c. I cannot help thinking that Dr. Nysten should have followed the French Academy; and that Dr. Johnson should not have brought forward Spencer to sanction a manifest Error. "*Abundare pro redundare, supervacaneum, seu superfluum esse perperam ponitur: nam abundare, copiam significat, non superfluitatem: adfert satietatem; non nauseam.*" Nolten, Lexicon Antibarb.

to produce a Headach? Bile, even cystic bile, in the stomach, produces not Headach, but vomiting: an excess of bile in the intestines produces not Headach, but Diarrhoea: bile in the blood might be supposed to produce a Headach, if pain in the head were a symptom of jaundice. But I do not think it proved, that bile ever enters the blood, either by regurgitating in the hepatic veins, or by absorption from the excretory ducts of the liver; first, because bile is never found in the lacteals, and never imparts its colour, or its taste to the chyle: secondly, because a jaundice arises sometimes in an instant from anger, in the twinkling of an eye from the bite of a viper, says Cardan;* therefore, sooner than its regurgitation, or its absorption, can take place: thirdly, because one-half of the body, and sometimes only one extremity is jaundiced, which it could scarcely be, if bile were generally diffused in the blood: fourthly, because there is a yellow colour in the white of the eye, in the skin, in the expectoration at the end of peripneumony, and sometimes in scurvy, although there is no disorder of the liver: fifthly, because the skin is yellow after Ecchymoses: sixthly, because the matter discharged by vomiting and purging in cholera, and in yellow fever, is at length ascertained to be not bile, but some part of the blood exhaled and modified in a particular manner: and seventhly, because the serum of the blood, in the jaundice of new-born babes, contains none

* Morgagni, de Sedibus et Causis Morborum, &c. Epist. lix. §. 36.

of the principles of bile. But they, who would know more of this subject, may consult M. M. Breschet, Desmoulins, and Lassaigne. To me it seems plain, that jaundice depends upon the blood itself.

And what is a nervous Headach? or rather, what Headach is not nervous? for every disease may, according to the two Professors of Medicine, Whytt and Cullen, be in some sense called nervous. And I would ask, what Headach differs so much from others that the epithet nervous belongs exclusively to it? I believe that in all Headachs, the nervous system is affected, and the pain is produced, before there is any turgescence of blood vessels, or any phenomenon cognizable by the senses. It appears to me, that, if the situation of the blood is an object with nature in the commencement of most diseases, there is an antecedent state of the nerves of that situation, upon which the state of blood vessels depends. Nay, I know no reason, that I should not conclude, that even an apoplexy sometimes kills a patient, before there is any sanguineous congestion in his head.

There is a division of diseases into idiopathic and sympathetic, concerning which I must say a few words. And our countryman, Sydenham, treating of Hysteria, shows how very well he understood it: for he there says, “ this Disease
 “ is not more remarkable for its Frequency, than
 “ for the numerous Forms under which it ap-
 “ pears, resembling most of the Distempers
 “ wherewith mankind are afflicted. For in
 “ whatever part of the body it be seated, it im-

“ mediately produces such symptoms as are peculiar thereto.*” This position of Sydenham’s is adopted by John Hunter, who lays it down thus : that when one part has a greater aptitude to sympathise with a local irritation than the rest, that part sympathises according to its own peculiar action.†

If diseases had not been so long distinguished into idiopathic and sympathetic, I would propose that sympathetic diseases should now be called *ideopathic* : for it seems to me, that a sympathetic disease is as proper to a part, that is, is as idiopathic (from *ιδίος*, proprius, specialis,) as that which is emphatically called so ; whereas its difference from the real disease of a part would be signified by the adjective ideopathic (from *Ἰδέα*, Imago, Species.) I know no better example of a sympathetic disease than that given by Mr. Abernethy, in these words : “ I have examined
“ a child who was supposed to have died of
“ Hydrocephalus, accompanied by great Disorder of the Stomach and Bowels. In this case,
“ the Bowels were inflamed, the Liver sound,
“ and the Brain perfectly healthy in appearance ;
“ yet there had been so great a diminution of
“ Sensation and Motion as to leave no doubt of
“ the existence of Hydrocephalus.”

It is certainly of great importance, at all times, to distinguish a sympathetic from a real disease. But, although, this is easy enough in some few cases, in which the sympathetic disease

* Swan’s Translation. p. 370.

† A Practical Treatise on the Diseases of the Teeth, &c. by John Hunter. p. 114, &c.

is consequent to an affection in some of the organs subservient to the natural functions ; yet in the majority of cases, the sympathetic disease is first known ; and unless the attention be directed by it to the primary disease, it is treated as if it were a primary disease.

Granting then, that a Headach may arise from the affection of some part of the body, remote from the head,* it may, I am inclined to think, be always known to be sympathetic, by its own internal evidence. For, from my most careful observation, such as it is, I have concluded, that a purely sympathetic disease of any part, has no accedent symptoms, no Epiphaenomena, no Epigenomena ; but corresponds exactly with, what ought to be, the logical and diacritical definition of some real disease of that part. I can, I am so bold as to think, trace the conversion of the sympathetic disease of a part, into the real disease of it, by the supervention of accedent symptoms.

Some may doubt the legitimacy of this conclusion : but, if they do, I beg them to recollect the cases they have attended themselves, and

* Consensus quam *συμπάθειαν* Graeci vocant. Cicero. Sympathy of fellow-feeling is when we participate the joys and the sorrows of one another, and feel disposed to console and to relieve one another. If I am distressed, because my patient suffers pain, and am therefore disposed to cure him, I sympathise with him. Every one is acquainted with this meaning of the word sympathy. But in medicine, it has no reference to the state of any thing external to the individual ; it signifies the consent of one part of his body with another part, or with all the other parts. It is natural or morbid : and it is through the medium of the brain or spinal marrow : for as Dr. Wilson Philip remarks, there is no proof that impressions are communicated from one nerve to another in any other way.

then to say, if some of them do not confirm it. They will not, I hope, object that such simplicity is not to be expected in the great variety and complexedness of the vital phenomena. Be that as it may, if I am not ignorant, that some diseases are not so simple and so distinct as Nosologists represent them; I am persuaded, that others are far more simple. And after having ruminated on the unqualified abuse of Nosology,* I can collect nothing more from its bitterest enemies, than that, because the same disease never appears alike in two individuals, but is varied by accedent symptoms; and because diseases are often complicated one with another; therefore they should be studied in their varieties and complications, before they are studied apart in their most simple state; a conclusion evidently absurd.† For the very notion of a thing being varied, or complicated, implies that it may exist without variation or complication; and it is the object of Nosology to represent diseases so. If Nosology be not yet adequate to its end, is it fair to conclude, that it will never be so? Will it not become more useful in pro-

* Dr. Brown's Abuse of Cullen's Nosology is omitted in the Second Edition of the *Elementa*; but it was too delicious a morsel to be lost; and, therefore, he gave it a place in his *Outlines*. *Quin Nosologia Morbos pro Symptomatis, et haec pro illis recipiens, communes affectus cum localibus permiscens, distantia natura conjungens, affinia dissocians, incerta pro certis habens, atque á proprio Artis Negotio in Nugas, Errores, Discrimina ficta, verorum neglectum, et rectam mendedi usus Perniciam, sine Fine, Modoque seducens, in cunis elidenda.*

† See a Paper on the Measles by Dr. Heberden, in *Medical Transactions*, published by the College of Physicians, in London. Vol. iii. p. 389.

portion as we shall be able to trace diseases to the very texture of the organs in which they begin, to mark the successive changes of this texture, the successive changes of the contiguous textures, the symptoms peculiar to each, and the various stages of the diseases, in which accedent symptoms occur.

That Headach, which Dr. Fothergill has described, commonly called the *Sick Headach*, is sometimes distinguished by the adjective *spasmodic*; and this for no better reason, which I can find, than that the pain, occupying a part only of the head, often shifts to another part. Where are the spasms or convulsions in this Headach? in the limbs, in the face, in the larynx, in the pelvis and abdomen, or in the intercostal muscles and diaphragm?*

Dr. Parry takes the Headach from suppressed menses to be the Sick Headach; and it is certainly a Headach in a subject very irritable, and liable to convulsions. Is it, therefore, a spasmodic Headach?

In short, every Headach being equally attended with spasm in some part, seems to me to be equally entitled to the epithet spasmodic. But is there a spasm of the brain itself? I have read of such a spasm.†

* See Dr. Park on the Laws of Muscular Motion, in the Journal of Science and the Arts. No. iv. p. 36.

† Le Spasme du Cerveau, comme dans une vive frayeur peut produire une morte subite. Commentair. sur les Aphorismes d'Hippocrate, par M. le Chevalier de Mercy. Aph. 44.

Rheumatic is an epithet prefixed to pains of the head, when they are supposed to be seated in the aponeurotic Expansion of the temporal muscle, in that connecting the occipital with the frontal muscles, or in any of the adjacent membranes of the fibrous class. Whether Rheumatism ever affect the dura mater, is uncertain; but it probably does so, and also the tendinous fibres of the recti muscles, which are firmly attached to the sclerotic coat of the eye, and the sclerotic coat itself. But it is unnecessary to say more of this; for if a Headach be that which I have defined it, it cannot be rheumatic.

Of a *gouty Headach* I shall speak in another place.

When I shall have spoken of the causes of the predisposition to Headach, I shall resume this subject, the Division of Headachs, and shall propose such a division as, if it do not so exhaust the subject that nothing relating to it is omitted, is however, I hope, more adequate by far than any other.

CHAPTER IV.

SECTION I.

PREDISPONENT CAUSES OF HEADACHS.

By the word Cause, nothing more is meant than the constant antecedent of some particular event : therefore, as often as I shall use the word Cause, as if it signified something agent, efficient, and productive, I shall do it in compliance with established usage, and the use of the world. For, as the very learned Author of SIRIS says, “ in compliance with established Language, and the Use of the World, we must employ the current popular Phrase : but then, in Regard to Truth, we ought to distinguish its meaning.”

Now, for a person to have any disease, he must be susceptible of it. Some may not be at all susceptible of it; and others may be susceptible of it at one time, and not at another. Pregnant women are said to be less susceptible of the plague : and very young children, and very old persons to be not very liable to fever. The susceptibility of a disease is that, which is called its *predisponent Cause*, or simply the *Predispo-*

sition to it. The Predisponent Cause of a disease is, therefore, in the person himself: and the Predisponent Cause of Headach depends upon that peculiarity in his head, which, whatever it may be, whether natural or acquired, produces no sensation, but renders him liable to Headach on certain occasions, when other persons are not so.

A disease then presupposes that some other Cause has acceded to the predisponent; neither this Cause alone, nor that other Cause alone being sufficient for its production. If the predisponent Cause of Headach were sufficient to produce Headach, that Cause being always present in such as are subject to it, Headach also should be always present in them. The other Cause of a disease which accedes to the predisponent, is called its *procatarctic, evident, or occasional Cause*, or simply *the occasion of it*: so that the predisponent Cause is as a latent spark, big with the flame of some disease, but which may exist when it is not suspected; and which, when it is known to exist, may not always be kindled.

I shall first speak of the Predisposition to Headach, of which some seem to entertain a very erroneous notion, and others no definite notion at all. For one hears every day the Causes of the Predisponent Cause confounded with the Predisponent Cause itself, whereas there can be only one Predisponent Cause of any disease, although the Causes of it may be innumerable.

The actual presence of Headach is not always necessary to convince us of the existence of its Predisponent Cause: but there are two signs, by

either of which we may sometimes, and by both of which we may always be convinced of its existence : the one is an imbecility in the head ; the other is a mis-shapen head.

Celsus takes it for granted that scarcely any one is born without an imbecility of some part : he devotes a whole Chapter to those, who have naturally an imbecility in the head :* and he expressly says, treating of Headachs, that there is sometimes an imbecility of the head, which is neither intolerable, nor dangerous, lasting a lifetime, and not requiring the remedies of Headach. I suppose he alludes to such as often complain of a sensation in their head, which they do not allow to be a pain, but carefully distinguish from a pain : for I have known such. But no person, whose animal functions are rightly and easily performed, feels even that he has one part more than another, or that he has any part ; so that, if he do feel it, the predisposition to some disease must be in it, because it must be influenced on occasions, on which others are not conscious of any sensation. I have heard persons remark, that they had momentary and quickly evanescent disorders of sight, of hearing, of smelling, and of tasting ; and these, I conclude, are signs of an imbecility in the head. If a person cannot bear vivid light, nor sudden, loud, shrill, or peculiar noises, nor certain odours, without some disagreeable feeling in his head, of however short duration, he has the predisposition

* *Raro quisquam non aliquam Partem Corporis imbecillam habet Lib. i. cap. 3 and 4.*

Hunter's Treatise on the Blood, Inflammation, &c. p. 221, &c.

to Headach. If any one of his senses be permanently increased, diminished, or depraved in any way, he is generally liable to Headach on slight occasions, and therefore has the predisposition to this disease. If he can neither retain his urine, when it should no longer be retained, nor have a dejection requiring ever so little the concurrent action of the abdominal muscles, without experiencing pain in his head, or giddiness, or a confusion of ideas, or an absence of consciousness, together with a sensation of sinking in the region of his stomach, he has the Predisposition to Headach.

Whether there be in the system a certain quantity of energy, so that while one organ is more excited than usual, the rest suffer a diminution of their power, although many facts seem to prove it, I am not able to decide :* but it has often been remarked, that some men, whose understanding is sound and efficient, and whose reasoning always commands attention, have their seasons for study. Several such, whom I have known, were troubled with a Headach. *Accipimus eum, qui Rem cum aliqua habeat, etsi aduratur vel incidatur, tamen ne minimum quidem Doloris Sensum capere posse.*

A mis-shapen head is acknowledged by Morgagni to be a sign of the Predisposition to Headach ; and he adduces many instances of it.†

* Bichât, *Recherches Physiologiques sur la Vie et la Mort*. Edit. 3d. p. 127 and 128. But see how the ingenious Frenchman is anticipated by our countryman Sydenham, treating of the Hysteric Disease.

† *De Sedibus et Causis Morborum*, &c. Epist. i. §. 14, 15. lxii. §. 15. 16.

Homer, like a true Craniologist, represents the head of Thersytes, as pyramidical (*φοξος*), and as proclaiming his malevolent affections, more especially his hatred of superiors, even of Kings.

Of the configuration of the head, as connected with the intellectual and moral character of individuals, and of Gall's four-fold division of the brain, I shall say nothing; but of the comparison of the brain in different classes of animals, and of the relation between the faculties of animals, and the proportions of those parts of the brain, which are common to them all, Mons. Cuvier has treated so strictly in the way of induction, that too much attention cannot be paid to him. He concludes, that the hemispheres of the brain are thicker in every direction in man, than in other animals; that the convolutions of the brain are deeper; and that the inequalities at the base of the brain are more numerous.*

When the cranium is mis-shapen, there can be no doubt, that a corresponding condition of the brain exists: those who have one hemisphere of the brain less than the other, must have its blood vessels less developed. And if the hemispheres do not match, they cannot act harmoniously. Those who have odd eyes, do not see well; and their eyes are often in pain.

I do not mean to assert that, when an irregular form of the cranium is hereditary, then only

* Cuvier *Leçons d'Anatomie comparée*. Tome i.

See also, *Elemens d'Anatomie Générale, ou Description de tous Genres d'Organes qui composent le Corps Humain*, par P. A. Beelard, &c.

some peculiarity of structure, some *lusus naturæ* is within it. There may, for ought I know, be as often peculiarities within the cranium, when it is well-formed : for the brain and the cerebellum are liable to great varieties of originally monstrous formation ; the convolutions on the upper, the lateral, and the posterior surface of the brain have been found to differ in number, and in distribution : the hemispheres of the brain have been found to be wanting, or to be incomplete : the middle or the posterior lobes have been found without furrows and circumvolutions ; the corpus callosum has been found to be wanting ; one ventricle of the brain has been found longer than usual, and another shorter ; one of the anterior lobes of the brain, where they are both contiguous, has been found bulging out, and received into a depression of the other ; some of the arteries at the base of the brain have been found larger than usual ; a peculiar distribution of the arteries has been found at the base of the brain ; the left lateral sinus of the dura mater has been found to be wanting : holes have been found in the falciform process of the dura mater ; the falciform process of the dura mater has been found to be entirely wanting, the two hemispheres of the brain being united, &c, and similar defects and deviations have been found in the cerebellum.

Headachs occurring at an early age generally depend upon a predisposition congenite with persons, and connatural to them ; and it is not uncommon for persons to have such a Headach, as their fathers, or their mothers had, They may be expected to have it, if the figure of their heads

be peculiar, but be like their fathers, or their mothers ; more especially if they have beside, an imbecility of their heads. But a Headach has often been traced by the mere figure of the head to a grandfather, to a grandmother, and even to some more remote progenitor, the predisposition perhaps not having existed, or not having been excited in every succeeding generation.

Such impressions as the imitations of painters and poets make on us, differ in degree principally from the impressions, which the objects imitated make. These imitations have hitherto been intended to stir up the passions only ; but their effect in this way cannot be durable :* why should not the imitations of the painter be addressed to the reason, and so made subservient to the practice of physic ? I have seen a family portraiture, which I, as a Physician, considered far more valuable to that family, than Le Brun's Picture of the Massacre of the Innocents could have been. I could wish, then, that the portraitures of patients who die of diseases, which are said to run in their families, were kept for the benefit of their posterity. How many a portraiture is georgeously suspended as an ornament, which speaks a volume to those who can understand it.

Morgagni complains, that the head of infants is often disfigured by unskilful midwives, who neglect, or who do not know how, to restore its shape, after a difficult birth. And how much the form of the cranium is liable to be altered in

* *Namque iis, quae in Exemplum assumimus, subest natura, et vera Vis : contra, omnis imitatio ficta est. Quinct. Instit. Orat. Lib. x. cap. ii.*

birth, and how it may then be reduced without injury to $\frac{1}{3}$ of its volume,* are facts totally unknown to them, But whoever reflects on the different degrees of ossification of the cranium at birth ; on the very acute angle sometimes formed by the bones of the cranium passing through a distorted pelvis ; on the head of a male being generally $\frac{1}{28}$ or $\frac{1}{30}$ larger than that of a female ;† on 49 out of 84 still-born children being males ;‡ on one-half more males than females being born dead ; on the greater proportion of males than of females dying soon after birth, &c. will probably be inclined to believe that the foundation of the predisposition to Headach is sometimes laid in the very act of parturition.

It is the custom of some barbarous nations to alter the form of the head immediately after birth :§ and some suppose, that the faculties of the mind are not injured by the alteration : but who can tell, how many infants may be killed by it ; whether the foundation of some of the benevolent affections may not sometimes be destroyed by it, and the foundation of some of the malevolent affections laid ; whether the predisposition to Headach, to convulsions, to epilepsy, to insanity, &c. may not sometimes originate in it ?

* Denman's Introduction to the Practice of Midwifery. Edit. 2d. vol. ii, p. 49.

† Philosophical Transactions, vol. lxxvi.

‡ Philosophical Transactions, vol. lxxi.

§ Adair's History of the North American Indians, p. 9.

Marsden's History of Sumatra. p. 38.

Mears's Voyages, p. 249.

Lawson's History of Carolina, p. 33.

Portal. Anatomie Medicale. Tome i. p. 92.

Galen maintains, that a head either too large, or too small, is accompanied with a limited power of thinking : and it seems to be the general opinion, that a head smaller than usual is never found in one distinguished by his mental acquirements. However, what Galen says of a small head, relates rather to a mis-shapen head.*

But, in determining whether the head of any individual be large, it should not be forgotten, how much the magnitude of the head may depend upon the thickness of the bones of the cranium, upon the greater projection of the frontal sinuses, &c.

Now, it is a very natural supposition, that the predisposition to a Headach may depend upon a tenuity and delicacy of texture, an exility of fibre in some part of the brain ; for weak parts are easily thrown into action : and as their action is weak and soon exhausted, especially under unusual circumstances, so it is very apt to become diseased action.

On the other hand, “ the only well established difference in the general anatomy of “ the arterial system, previously to the period “ of maturity, is, says Dr. Gordon, the much “ greater absolute size of the capillary branches. “ This is always the more remarkable, the “ younger the subject.”† I presume, it will not

* Scribit Galenus 6 Epid. Comment. 2. Aph. 3. acuta Capita, in quibus Dentium Positus immutatus videtur, ut inferiores e regione superiorum non sunt, sed veluti revulsum ac distortum Os videatur, Doloribus assiduis Capitis conflictari. Sennert. Pract. Lib. I. Pars. III. Sect. 1. cap. iii.

† A System of Human Anatomy, by John Gordon, M. D. &c. Edinb. 1815. p. lxi.

be denied, that an unusual size of the capillary arteries may exist in the brain only, or in some portion only of it. All must acknowledge, that parts merely weak by nature may be made strong by skilfully regulating their action. What is more common than to hear of those, who at an early age were unable to exert some of the faculties of the mind, having by a gradual intension of those faculties raised them to a surprising degree of perfection? What is more common than to hear of those, who at an early age incurred a Headach on every extraordinary occasion, having at length outlived it?

Again, suppose the Cause of the predisposition to Headach to be a peculiarity in the figure of some part within the cranium, or in its relative magnitude, or in its total absence. Any peculiarity within the cranium may limit the cerebral functions, and cause the predisposition to Headach. Nature often accomplishes her ends in living bodies by different means: and although not so well, perhaps, as by such means as are common to the species, yet well enough for the preservation of the individual, and for all his ordinary concerns. I have no doubt, that parts unusually formed within the cranium may by carefully extended exertion have the sphere of their activity enlarged, so that the predisposition, depending upon them, to any disease may be so far lessened, that the disease shall arise on fewer occasions, because not on such slight ones.

The temperament most apt to be affected with Headach is generally said to be the sanguineo-melanchotic. I think it occurs equally in all temperaments; but that it is connected with

a less frequent systole of the heart : for children are not very liable to Headach, although it may occur at any age : and the experienced and sagacious Dr. Heberden who fixes the limits of the pulse for the third, fourth, fifth, and sixth years, at 80 and 108, says, that, if “ the pulse “ of a child be 15, or 20, below the lowest limit “ of the natural standard, and there be at the “ same time, signs of considerable illness, it is a “ certain indication, that the brain is affected.”*

It seems to me, assuming the average number of the pulse of men to be 73-75, or 75, in a minute, and of women, between thirty and forty years of age, to be 84, that Headach is most frequent from about forty-five years of age, when the pulse becomes gradually slower, to about 60, after which the pulse begins again to be more frequent. Of course the natural pulse of the patient in health should be known : for in his Headach, and, perhaps, for some time before it, his pulse is slower than natural.

So much for that predisposition, which is hereditary ; and for that, of which the Cause may be acquired in early infancy. But the Predisposition to Headach may be acquired at any period of life, and may not be known to exist afterwards for years, and never, perhaps, because it requires an occasion, and, it may be, a very particular occasion to affect it, so as to produce a Headach. There are some, who may every day be heard to say, that they knew not what a Headach is, till they had had a certain disease, or had suffered a certain injury.

* Medical Transactions of the College of Physicians in London. Vol. II.

The diseases which are said most frequently to leave behind them the Predisposition to Head-ach, are fevers attended with congestion, or inflammation in the head, and the specific diseases, scrophula, syphilis, &c.

Fevers often give rise to an irregular distribution of blood in the head, and even to inflammation: but fevers may give rise to them in any other part: and, if I am not mistaken, fevers give rise to them oftener in the lungs, in the stomach, in the intestines, or in the liver, To fevers I would refer drunkenness, the habit of which, as rendering persons liable to Headach, has long since been noticed by Willis, Morgagni, Ramazini, and others.* There can be no doubt that, in a fit of drunkenness, the action of the heart is increased; and that when the fit is over, the action of it is diminished: some say, so diminished, as to be unable to unload the venous system. Morgagni says, that the habit of drunkenness produces a weakness and enlargement of the blood-vessels within the cranium; and therefore pressure on the brain, the cerebellum, and the medulla oblongata: and I am inclined to believe opium, when taken as a dram, does the same. Certain it is, that opium, like spirituous liquors, intoxicates a man, and then lays him asleep.†

* *A Passione vehementi, a Crapula, Ebrietate, insuper a Capitis Ictu, Vulnere, aut Contusione. Dispositio Cephalalgica non facile deletibilis crebro inducitur. Willis de Anima Brutorum. Pars Pathologica.*

Morgagni, *de Sedibus et Causis Morborum, &c. Epist. lx. §. 13.*

Ramazini, *de Morbis Artificum. Cap. xxi.*

† See Haller's *Parallel of Wine and Opium. Elementa Phys. Vol. v. p. 610, &c.*

On the assumption, that more females have the Predisposition to Scrophula than males, the greater frequency and violence of Headach in them might, perhaps, be accounted for.* But I am not convinced, that more females have the scrophulous predisposition, or that females are more subject to Headach than males, although this is generally asserted. A smooth, transparent, white, and delicate skin, with rosy cheeks, light blue or grey eyes, light-coloured and weak hair, and a somewhat thick upper lip, I have so often seen in those who had never had, in their youth, any swelling of the lymphatic glands in the neck, or in the mesentery, any swelling of the upper lip, or any affection of the eyes, or in their advanced life, any disease of the heads of the cylindrical bones, the bones of the carpus, the tarsus, or the vertebrae, and tumours containing a shining, flaky, and coagulated matter, although they had for twenty years, or more, carelessly exposed themselves to cold and dampth, &c. which might have occasioned inflammation in the most healthy and robust, that I agree with those, who maintain that they are not really the signs of the Predisposition to Scrophula. I have seen many cases of scrophula in persons, whose hair was dark-coloured, and whose skin was not remarkable for the fineness of its texture : nay,

* Sed vehementius *Feminas* tenet ob Diligentiam Capillorum, says Caelius Aurelianus, Morbor. Chronicor. Lib. 1. cap. i. And Almeloveen adds, by way of explanation, quos (sc. Capillos) cum pectunt, comunt, tingunt, summittunt, Caput saepius lavant.

I have known whole families of children, whose hair was almost black, to be affected with scrophula, although they had not one of the signs usually supposed to proclaim the Predisposition to this disease.

The Predisposition to Scrophula is, I believe, always hereditary : but it does not follow, that a person must have scrophula, because he inherits the Predisposition to it. For it seems to be fully proved, that scrophula may be prevented, if not, that the Predisposition to it may be removed, by fortifying the body. Where, however, there is the Predisposition to Scrophula, in any part, for this may exist in one part only, it may be excited in that part, by a constitutional disease, or by an injury. If the constitutional disease be a fever, when the febrile action ends, it ends not in the healthy action of every part, but in the scrophulous action of that part : therefore the Predisposition to Scrophula cannot consist in mere weakness, local or general.

The women, whom I have found to be most frequently the subjects of Headach, and of insanity, were the irascible, the arrogant, and those subject to effusions of spleen : such as had dark-coloured hair, dark eyes, a brown and coarse skin, a sallow complexion, a rather slender habit, small and firm muscles, a slow and full pulse, vigour of intellect, gravity of deportment, incapability of disguise, and awkwardness in attempting it ; zeal and constancy in friendship, implacability in enmity, a predisposition to disease of the liver, a proneness to depression of spirits, and a frequently returning groundless apprehension of humiliation. And it tends, I think, to show that

such women as these are the most liable to Headach, that women in general are so often afflicted with it, after the final cessation of menstruation, when some of the signs characteristic of sex disappear, and others rendering them more like males appear.*

The Predisposition to Scrophula in the brain may, I think, be the Predisposition to Headach; and a Headach may sometimes be traced to it; oftenest, perhaps, after the age of 35 or 40: for if a person have had the glands of his neck swollen before puberty, or any other demonstration of Scrophula, and complain after puberty of frequent attacks of Headach, he may have an exostosis of his cranium, or tubercles in his brain, resembling exactly such as are found in the mesentery.

I am decidedly of Dr. Baron's opinion, that tubercles in the lungs are not produced by any kind of inflammation; and I have reason to believe they sometimes exist in the brain, as well as in the lungs, at birth, and long afterwards, without producing any symptoms.

If a scrophulous caries of the cranium extend to the dura mater, it must disturb the functions of the brain.

* Blumenbach refers to a Treatise in 4to. *De Feminis ex Suppressionione Mensium barbatis*, printed at Altorf 1664, and he says, that a change perfectly analogous is frequently seen in female birds, which, when they cease to lay eggs, lose the feathers peculiar to their sex, and acquire such as characterise the males. *Instit. Physiol.* §. 660.

See also John Hunter's account of an extraordinary Pheasant, re-published from the *Philosophical Transactions*, in his *Observations on certain Parts of the Animal Economy*.

Whether Hyperostosis of the cranium ever give the Predisposition to Headach, as exostosis does, I know not: but I suppose it does, as it has been found in those who had suffered fits of epilepsy.

Whether syphilis or mercury be the more severe scourge of the votaries to Venus, is not a question to be here decided. But I am one of those who cannot see why mercury should produce affections in syphilis, which it does not produce in the diseases, for which it is used so freely in the East Indies; and who, at the same time are persuaded, that mercury has not always been employed in so moderate and gentle a manner as it should have been, for the cure of primary venereal sores, more particularly in irritable and scrophulous habits.

Not only Syphilis, but also those diseases resembling it, which depending upon secretions and sores, are propagated by promiscuous intercourse, may leave behind them the Predisposition to Headach. Nocturnal pains of the head beginning six weeks, or even much later after the removal of the primary symptoms of Syphilis, may be the mere precursor of some of the eruptive diseases attendant on Syphilis; but they may also be the consequence of some disease in the external, or the internal, table of the cranium, as node, caries, &c. to which Syphilis disposes. A syphilitic caries has destroyed the greater part of the cranium, and of the brain itself, even to its ventricles.

A pregnant woman, affected with the venereal disease, may contaminate her foetus in ut-

tero : and a child at its birth may bring Syphilis with it, although neither its father, nor its mother have for many years had any symptom of this disease.* I have often seen infants not more than two months old, with copper-coloured spots on the skin, and eruptions papular, tubercular, or pustular, with hoarseness, ulcers in the mouth and throat, and upon the face, hands, and labia pudendi, which I cured with mercury, because I thought them to be venereal ; but which I do not positively assert to have been so.

I do not suppose, that the bones of infants are ever affected with Syphilis, which generally attacks the hardest and most compact bones, and the hardest and most compact parts of bones : but I suspect that they may be affected by it early in life ; for I know, that a Headach occurs sometimes about the time of puberty, rages most during the night, the pains being as if the bones of the cranium were being torn asunder, and extending down the cervical vertebrae ; and that mercury has seemed to cure it. I do not, however, ground my suspicion, that this Headach is venereal, entirely upon its raging most in the night ; for I am aware that there are other pains as well as venereal, which rage most in the night :† and also, that venereal pains do not always rage most then.‡ My suspicion rests more on such pains being often followed by eruptions.

Hypertrophy of the brain, or enlargement of

* Medico-ch. Transact. Vol. vii. p. 541.

See the Life of William Hey, Esq. by J. Pearson, F. R. S.

† Triller, Exercitatio de vespertina Morborum Exacerbatione, Opuscul. Medic. Tom. ii.

‡ Stoll, Ratio Medendi. Pars. ii. p. 163.

this organ, is said to give rise to all the symptoms of Hydrocephalus. It is conjectured that this disease may arise from the sutures of the cranium closing too soon, so that the brain continuing to be developed, suffers compression.

The injuries which are said most frequently to leave behind them a Predisposition to Head-ach, are blows or falls on the head : and they may have been received very early in life, and been forgotten or concealed by those, to whose carelessness, if they had been known, they would probably have been attributed. I shall not enter here into a detail of all the possible consequences of a blow on the head : some of them I have already noticed ; another of them, however, I take to be an irregular tumour, consisting of ossific matter, and projecting beyond the level of the internal table of the cranium, perhaps, the effect of Nature's endeavour to repair an injury in a constitution, altogether free from the tendency to any specific disease.

Tumours, the consequence of external injury, or of internal disease, arising from the internal table of the cranium, and tumours, tubercles, hydatids, &c. in the membranes of the brain, or in the brain itself, whatever may have occasioned them, may have produced no pain during their growth, or after it had ceased, because in proportion as they grew, and compressed the brain, the brain in some way or other made room for them.* Even a tumour on the tuberculum annulare, sunk into it, and extending to the corpus

* See Sir Everard Home's Paper in the Philosophical Transactions for 1814. p. 474.

pyramidale of the same side did not of itself produce pain ; for the patient, Dr. Yellowly says, had been subject occasionally only to severe attacks of pain in the head.

Abscesses and ulcers have been detected in the brain of those, who had never complained of pain : and one whole hemisphere has been destroyed by chronic inflammation, without any pain or fever. I have already noticed, that encysted abscesses in the brain have been unattended with pain in the head, or any disorder of the cerebral functions ; and that, where persons have died with them, either active inflammation around them, or hemorrhage had supervened. I think, however, that the abscesses may as justly be placed among the Causes of the Predisposition to Headach, as to active inflammation, or hemorrhage. Whether tubercles in the brain ever become hardened, and then lie in a dormant state. or whether they ever become softened, excavated, and covered with a semicartilaginous membrane, as a curative effort of Nature, I cannot decide.

It happens seldom, but it happens sometimes, says Celsus, that the whole of the cranium remains entire after a blow on the head, but that a blood-vessel, ruptured by it in the membrane of the brain, pours out some blood.* A case of rupture of the middle artery of the dura mater from the shock of a false step, in which the quantity of blood effused was prodigious, and the patient died on the second day, with slight pain of the head, and slight giddiness, is given by Bell.†

* Celsus. Lib. VIII. cap. 4.

† Anatomy of the Human Body. Edit. II. p. 299.

But effusions of blood, in cases of apoplexy, from which patients have recovered, are noticed by many authors ; and Sir Astley Cooper says, that his dissections have led him to believe, that “ extravasated blood upon the brain, from apoplexy, and accidents, never becomes absorbed, but that the brain gradually acquires the power of bearing its pressure ; and that thus the symptoms which are produced at the first moments of general extravasation gradually diminish.”*

And the brain may be lacerated in different parts, where no vessels carrying red blood are to be seen ; and, by consequence, where there is no effusion of blood ; but the sides of the lacerated part remaining in contact, they may be cemented together by coagulated lymph, and the laceration may be healed by the adhesive process.

Morgagni mentions thickened membranes, and membranes joined to each other by coagulated and organised lymph, as Causes of the Predisposition to intolerable pains in the head. And he adds, that these pains return daily at the same hour ; and that they are the more dangerous, the more they are exactly periodical, so that they are seldom cured. Surely the reason that these pains return every day at the same hour can be no other than that the circulation of the blood

* See Sir Astley Cooper's Account of his Dissections of Cases of Apoplexy. and Extravasations of Blood upon the Brain, in page 275 of the First Volume of Dr. Cooke's Treatise on Nervous Diseases.

in the head is every day disturbed at the same hour.*

Are not new-formed parts in the brain, as weak parts are every where in the body, more liable to ulceration from irregular modes of living, from violent exercise, from great depravations of habit, &c. under which, as they have little power, so they are unable to support themselves. I allude to cicatrices, &c.†

I may here add, that fungoid affections are very apt to exist at the same time, or in succession in different parts: thus the medullary sarcoma, or fungus haematodes has taken place first in a testicle, and then in the brain.

Dissections have shewn, in the medullary portion of the brain, the cerebellum, and the spinal marrow, induration apparently without blood-vessels, altogether inorganic, and resembling the white of an egg boiled hard; also a softening, sometimes almost to fluidity, which is oftener of the thalami nervorum opticorum, and of the corpora striata. Of this softened part the colour varies: it is sometimes as white as milk, or rosy, or red, or brown, or yellow. A violent pain in the head more or less frequently attends it; as do, according to its seat, different changes in sensation and voluntary motion, and in all the other functions of the nervous system.‡

* Morgagni de Sedibus et Causis Morborum, &c. Epist. I. §. II. &c.

† Ansons Voyages.

‡ Baillie's Morbid Anatomy. Edition 5th. p. 452.

Rostan, Recherches sur le Ramollissement du Cerveau.

Oilivier de la Moelle Epiniere et de ses Maladies.

The intelligent reader is, no doubt, aware that several appearances within the cranium, which some refer to injuries, others refer to diseases; and that several appearances, which some take to be morbid, others consider as natural, or as the consequence of death? Certainly, it must be acknowledged, that the same appearances have sometimes been detected in such as had been subject to Headach, to convulsions, to epilepsy, to palsy, or to insanity: so that it is difficult to tell why they should have caused the Predisposition to any one of these diseases rather than to any other. Perhaps, they may not always have caused the Predisposition to any of these diseases, although when they were detected, they were supposed to have done it: for no morbid appearance is sometimes to be detected after the most distressing Headach, after Epilepsy, after Insanity, &c.

It is generally a very difficult task to ascertain where the Cause of the Predisposition to Headach has its seat: for when symptoms are to all appearance the same, the Cause of the Predisposition is often very different. It is certain, however, that the seat of the Cause of the Predisposition may, in some cases, be ascertained: thus, in a case related by Du Verney, in which, first blindness (amaurosis), and next deafness, took place, it might have been inferred, that the cause was in the thalami nervorum opti-
corum, or in the course of the optic nerves within the cranium, although it could not have been known what the cause was: and in Dr. Yellowly's case, in which the abductor muscle of the eye

was paralytic, it might have been concluded from the strabismus, together with the pain having for twelve months before shot occasionally from the hind part to the fore part of the head, that the cause was at the point of union between the nodus cerebri and the spinal marrow, or in its course to the foramen lacerum. But from the seat of the pain alone, in a Headach, we cannot very confidently reason to the seat of its Cause, even although the pain should always have returned to the same place; for Morgagni relates a case, where pain had always been referred to the brain, but where a tumour was found in the cerebellum; and he thinks the pain in this case had depended upon more blood being sent to the brain in proportion as less was admitted into the cerebellum :* and in like manner, Dr. Lallemand attributes the symptoms of Mary Gabriel's case, communicated to him by Mons. Breschet, to the compression of the sound hemisphere of her brain, by the gradual enlargement of the inflamed hemisphere.†

Thus, I think, I have in some manner advanced enough to show, that the perfunctory examination of a patient labouring under a Headach, is inexcusable. I do not mean that questions should be put to a patient, till he is tired of answering them, which in most diseases is never, although in Headach it is very soon; but that questions, the answers to which have no ten-

* Morgagni de Sedibus et Causis Morborum, &c. Epist. LXII. §. 16.

† Recherches Anatomico-pathologiques sur l' Encéphale et ses Dependances.

dency to elicit a knowledge of the patient's case, should not be put at all. John Hunter says, that he has heard such questions asked a patient as convinced him that the surgeon had mistaken one disease for another ; or one stage of a disease for another. Therefore, that a patient with a Head-ach, the severity of which is augmented by the exercise of attention, may not be harrassed by unnecessary questions, as he is too often, for no other reason that I can imagine, than that he and his friends may be deluded, it is to be wished that the medical man, in whom he confides, may be well versed in the appropriate studies of his profession ; that he may more especially be acquainted with the minute structure of the human body, the properties of its different textures, the changes which they may undergo, and the symptoms corresponding with those changes in every stage of their progress ; that he may know in every respect the habits and the idiosyncrasy of his patient, if he have any, the disease that runs in his family, if there be any ; and the diseases and injuries which he may, even from his birth, have suffered ;* then that he may be possessed of a talent for minute, comprehensive, and rapid observation, a memory at once retentive and ready, and such a presence of mind as not to be disconcerted, and restrained in his exer-

* Celsus says, *cum par Scientia sit, utilior Medicus est amicus, quam extraneus* (Praef. Lib. 1) ; which is thus paraphrastically translated by M. M. Vitet : *un Medecin Ami du Malade connoit mieux son Temperament, son Caractere sa Conduit, et les Remedés, qui lui conviennent, qu' un étranger.* Mat. Med. Disc. Prelim.

tions, either by the rank and splendour of his patient, or by the silly suggestions of ignorant intruders; and lastly, that he may be able to ascertain of what kind a Headach is, and whether it be to be cured, or into what disease it is likely to be converted. Medicine is a conjectural art: and they, who have seen many patients, are sometimes apt to conceive themselves duly qualified to judge of a case of any disease; not aware that, in medicine, if conjecture be not founded on anatomical, physiological, and pathological knowledge, it is no better than blind palpation.

And now, to return to the division of Headachs, as I promised. I presume that the reader has clearly seen, that there are two kinds of Headach, essentially different from each other; one, in which every succeeding paroxysm is not more violent than the preceding, but is generally less so; and another, in which every succeeding paroxysm is more violent than the preceding; that the former Headach is not excited on all extraordinary occasions, but on some only; but that the latter is, more or less, excited on all extraordinary occasion; and, therefore, that in the former, there is a disposition to discontinue a morbid action; but that in the latter, the vis medicatrix naturae is surpassed by the Predisposition, which increases even in the intervals of the paroxysms.* The former Headach, I shall call Cephalalgia, the latter Cephalaea.

* φιλονόεσσοφον γὰρ κακὸν, καὶ ἐν ἐδρῇ ἰζον τὰ πολλὰ φωλεύει. Aretaeus.

CHAPTER IV.

SECTION II.

OCCASIONAL CAUSES OF HEADACH.

THE Occasions, on which a Headach may arise, are so many, that I cannot pretend to enumerate them all. But all persons are not liable to Cephalalgia on the same Occasions, which probably depends upon the diversity of the Causes of the Predisposition to it in different individuals. This, however, seems to be certain, that whatever may be the Occasion of Cephalalgia in one, may be the Occasion of Cephalaea in all, provided that they have the Predisposition to it. I shall, therefore, take notice of some of the more common Occasions, which they who are liable to Cephalalgia may avoid; and of others, which they who are liable to Cephalaea, cannot avoid.

The reason that some confound predisponent with occasional Causes is, that many things, which produce the Predisposition to any disease, produce the disease itself in such as already have the Predisposition. I have noticed the necessity

of distinguishing the Predisposition to a disease, from the Causes of that Predisposition.

We know, that impressions made on our organs of sense are the occasion of sensations: but in what manner, or by what means, sensations are produced, we shall probably never know.

Every organ of sense is susceptible of its proper impression only: the eye cannot receive that impression, which excites the perception of sound; nor the ear that, which excites the perception of light. All impressions on the eye excite sensations of vision only: nor does fire give the sensation of heat to any nerve, except to that which is appropriated to the surface.

All our knowledge of the qualities of external objects is obtained by means of our organs of sense; and we know nothing of them, except their qualities.

We reckon five senses: seeing, hearing, smelling, tasting, and touching: but some resolve all these five into one;* and others add to them a sixth.†

All sensations are the more distinct, in proportion to the vivacity of impression: and vivacity of impression is increased by novelty and contrast; by novelty, because it raises the curiosity and confines the attention; by contrast, because it changes the very nature of the sensation. The light of the sun, and the light of a candle, if viewed apart, are both white; but if viewed together, the former is blue, and the latter yellow.

* *Elemens d'Idéologie* par A. L. C. Destutt-Tracy. Edit. II.

† Buffon. *Histoire Naturelle*.

Two sensations affecting us at the same time, the one of them strong, and the other weak, the latter is sometimes not felt at all. The stars disappear before the sun.

Two sensations may so agree in their nature that neither of them is distinguishable in their compound impression. The fragrance of a nose-gay does not lead us to a knowledge of all the odoriferous flowers composing it.

Two sensations, with a very short interval between them, are apt to be confounded: two sounds at a less distance from each other, than $\frac{1}{9}$ of a second, give the idea of a continued sound. An ignited stick, quickly whirled round, gives the idea of a ribbon.

Such are the general remarks, which I would premise, to avoid repetition.

First, then, as to *Vision*, which is the most active of all our senses. This depends upon the second pair of nerves, the optic: and the impressions upon the retina, which is an expansion of the optic nerve, at the bottom of the eye, are made singly and instantly.

Some have their Vision naturally too acute, so that they contract a Headach on the slightest occasion.

Galen says, that they who have a Headach, cannot bear the light: but they who have the Predisposition only to Headach, may have this disease excited by too vivid a light; and, therefore, by coming too suddenly out of darkness into ordinary day-light. For although our organs of sense are never in pain from the absence of their appropriate objects, as parts used to perpetual

stimulus are, when this stimulus has for a time been withholden, yet their excitability should seem to be accumulated during their inaction.

A person who has lost his eye-brows, or his eye-lashes, is more liable to Headach, if he have the Predisposition to it: for they are shades, and lessen the number of the pencils of the rays proceeding from the different points of a visible object. They serve also to exclude dust, and all small particles floating in the atmosphere. But when the eye-lids are closed, light may be seen through them, which is, perhaps, the reason that they who have a Headach prefer utter darkness.* No organ of sense shows the energy of the brain so plainly as the eye.

They, whose occupation requires the continual exercise of their eyes on minute objects, and they who fatigue their eyes by poring over a book, printed in a small type, more especially in a dim light, are frequently affected with Headach. Mr. Travers, treating of amaurosis, observes that tailors and shoe-makers never see so well as on a Monday morning, after the repose of the eyes on the preceding day.

It is a curious fact, that they who have lost their sight, often dream that they are surveying objects; as they who have lost a leg, often complain of a pain in their toes. It is a proof, however, that the mind, and not the eye, sees; and

* Ou cite des Exemples où la seule Impression d'une Lumière vive sur les Paupières entièrement fermées, avoit donné Lieu à l' Eternuement. Bichât, Traité d' Anat. Descript. Tome II. p. 420.

also that vision may be revived without light, in such as have once seen. From frequent inquiries, made of persons who had lost their sight, by consequence of ophthalmia, it should seem, that, if one dream of viewing objects with attention, he always awakes with a Headach, provided that he have the Predisposition to it. And, indeed, if he, who sees, dream that he is surveying the paintings of great artists, and admiring the beautiful masses of light, and shade, the grouping of the figures, the expression of the passions, &c. his sight is as much fatigued, when he wakes in the morning, as if he had been surveying them in his waking hours.

Hearing. Persons who have long been in silence, hear for a time the more acutely for it : hence slight noises are quickly and acutely heard in the dead of the night. In all Headachs the hearing is more acute, unless the patient was deaf before their occurrence. In that Headach, which produces a collection of water in the brain, Dr. Rush knew two patients, whose hearing was so acute, that they could not bear the noise of the sparks from a hiccory fire without starting.

They, who have had their tympanum perforated, although deaf before, are said to hear painfully for some time afterwards.

The impression of sound should seem to be sometimes conveyed to the portio mollis by the portio dura of the seventh pair of nerves : as when the meatus auditorius externus is stopped, or the tympanum is imperfect, so that impressions are not conveyed in the usual way to the portio mollis : but when sounds are heard with

the face, it is not likely that they should occasion Headach.*

Sounds may, perhaps, so affect the abdominal viscera as to occasion Headach.†

Smelling. Mons. Magendie endeavoured to show, that the first pair of nerves are not the nerves of smelling; but he seems to have forgotten that the healthy state of the portio dura, which controuls the action of the muscles on the cartilages of the nostrils, is necessary to the complete act of smelling: for if the portio dura be divided, effluvia cannot be forcibly drawn to the seat of the sense of smelling. The common sensibility of the schneiderian membrane depends upon the fifth pair of nerves.‡

Every one knows, that Headach is often occasioned by perfumes: Hippocrates says, that they occasion a heaviness of the head, (*carebaria*).§ Many contract a Headach by smelling flowers in the open air, especially in the morning, while the dew is disappearing, and also in a fog, when the odorant particles are suspended by the aqueous. I have heard of those, who

* Medico-chirurgical Trans. Vol. ix. p. 422.

† Les Sensations des Sons e'etendent sur les Nerfs de tous nos Organes. La Musique peut produire en nous des Effets etonnans. Des Bruits violens peuvent affecter les Entrailles et determiner des Evacuations subites, produire de legeres Contractions des Muscles et meme de Convulsions, ou, par une action differente, occasion la Stupeur des Membres, &c. Portal, Anat. Medic. Tome iv. pages 140, 191, 480.

‡ An Exposition of the Natural System of the Nerves of the Human Body, &c. by Charles Bell.

§ Aph. 28 of Sect. V.

could not bear the smell of pinks and honeysuckles, and who were ready to

“die of a Rose in aromatic Pain.”

The hydrocyanic acid, of which the odour produces almost instantly a pain in the head with deafness, exists naturally in bitter almonds, kernels of apricots, of peaches, of cherries, in leaves of laurel, in peach blossoms, &c. This excites no inflammation. It is a most virulent poison, and as it exists in flowers, leaves, kernels, &c. the odour of it seems to affect the nerves of the blood-vessels, and to occasion a dilatation of them, which dilatation is passive, and lays the foundation of a local congestion, and of a disproportionate circulation through the brain. No antidote is yet discovered for the hydrocyanic poison: but for the Headach it occasions, we employ stimulants, as carbonate of ammonia, brandy, &c.

Orfila says, that a person was killed by sleeping in a room with rose-bay: and Dolaus, that sleeping under a walnut-tree occasions Headach.

They who are suffering from the aroma of flowers are advised, by Orfila, to go as quickly as possible into the open air, to inspire the vapour of vinegar, and to drink a draught of sugared water.

Animals that do not smell, are said to taste the emanations of odorant bodies; emanations which in a manner become visible, when those bodies are floated on water.

Humboldt says, that the smell of a dog awakes a crocodile from the sleep of hybernation.

It is impossible to overlook the analogy between different diseases of the head, although one may not agree with Dr. Mead, that such diseases generally proceed from too much blood in the head. I shall only remark here, in addition to what is elsewhere said, that most insane persons have a pain in the head, or have had it; and that light is equally disagreeable to an insane person at day-break, and to a patient labouring under Headach.*

Attention. Perceptions are soon forgotten, if the objects, which occasion them, be not attended to. Attention requires an effort, and that a voluntary effort: it is the state of one, who wishes to overcome a difficulty. There are some, who cannot exert this faculty at any time, the least unseasonable, without feeling a pain in their head. And the famous Boerhaave, by unremitting attention to a single subject, for a whole day, was prevented from sleeping for six weeks.

Attention is more likely to occasion a Headach, when obstacles are in its way; as when one looks upwards stedfastly at objects in the Heavens, or, downwards from the battlements of a tower, since it is more difficult for him to judge of things which are either much above, or much below his level; also when one inquisitively turns his eyes to fixed objects, while he is riding in a carriage, sailing in a boat, or whirled about in a swing; and also where one directs his sight to objects in rotary motion, himself being still.

Divided attention is powerful in occasioning

* Dictionnaire des Sciences Medicales. Art. FOLIE.

Headach; as when one surveys an extensive landscape from a window, either embracing the whole of it at once, or even regarding one part of it after another, beginning with the most striking parts, then passing to the less striking, and so on, marking the respective situation of all the parts in succession. Cæsar is said to have dictated to seven Secretaries at once.*

Remembrance or *Reminiscence* may occasion a Headach. A lady, whom I know, always feels a pain in her head, when she thinks of a favorite child who died. I once saw her faint at a concert, as soon as a tune was begun, which her child had been accustomed to play: and on her recovery, she told me, that the mere Reminiscence of her child always made her Head ache. Some persons shudder at the remembrance of what they have suffered, or of what they have escaped; and others become sick at the very name of ipecacuanha, or of antimonial wine.†

Recollection, or *active Memory*, or *ready Memory*, which depends upon the will of the individual, is so common an occasion of Headach, that every school-boy, and every adult,

* *Ssribere et legere simul, dictare et audire accepimus: Epistolas vero tantarum Rerum quaternas pariter Librariis dictare, aut, si nihil aliud ageret, septenas.* Plin. Hist. Nat. Lib. viii. cap. 25.

† Who, if he have had a classical education, does not remember these admirable and very beautiful lines:

Stetit acer in Armis

Aeneas, volvens Oculos, dextramque repressit:

Et jam jamque magis cunctantem flectere Sermo

Coeperat: infelix Humero cum adparuit alto

Balteus, et notis fulserunt cingula bullis

who is in the habit of looking beyond the surface of things, may have experienced it. When a person is describing his Headach, although he may not have had a paroxysm of it for years, he may occasion its return.

As Headach is a very common effect of the endeavour to retrace the evanescent processes of Thought, as when one is obliged to state to others the grounds on which he proceeded in forming some decision, so it is common when one follows a series of judgments in a book on any science, of which he scarcely knows the first principles. Every one finds Study the less hurtful, the more his intellectual faculties have been improved; the more he is acquainted with the principal divisions and ramifications of science; and the more the objects of his reasoning are connected with the particular details, with which his senses are conversant. For thus prepared, his mind is directed, and prevented from digression. I believe, a Headach is never the consequence of the formation of general principles; the characteristic properties of things, when once the things have been fairly examined, arising spontaneously in the mind, by a kind of Reminiscence, which, Themistius says, is always most perfect in the most ingenious minds.

Pallantis Pueri; victum, quem volnere Turnus
Straverat, atque humeris inimicum insigne gerebat.
Ille, Oculis postquam saevi monumenta Doloris
Exuviasque hausit, Furiis adensus, et Ira
Terribilis: Tunc hinc Spoliis indute meorum
Eripiare mihi? Pallas te hoc Volnere. Pallas
Immolat, et poenam scelerato ex sanguine sumit,
Hoc dicens, Ferrum adverso sub Pectore condit
Fervidus.

Night Study, which is always protracted, and prevents sleep, and also Study immediately after meals, which prevents digestion, frequently occasion Headach.

Are not some portions of the brain expanded, or erected, in sensation, perception, attention, recollection, &c.? If this be the case, there must be an irregular distribution of the blood in the brain. I would not, then, be considered as one, who denies, that the brain is actually the instrument of sensation, perception, memory, &c. so that a Cause almost physical may, perhaps, be assigned for the Headach of those, who apply themselves, late in life, to Study: for the strength of the perceptive, as well as of the physical faculties, is elicited with the development of organization, is confirmed by the pursuit of knowledge, and continues through life with increasing vigour, till the decay of the body begins.

Dr. Fothergill, writing on Hydrocephalus, remarks, that “several of the children who came “under his care in this disease, were either the “favourites of the family, or the sole hopes of “their parents.”* Their quickness of perception, their ready memory, their uncommon docility, and their playfulness, are often, I suspect, the motives for sending them to school sooner than others, that they may have the full advantages of their premature endowments. But their precocity is generally connected with the Predisposition to scrophula; and this with large arterial capillaries..

* Medical Obs. and Inq. Vol. iv. p. 42.

What then can be more absurd than to force organs to act immoderately, before they are so completely formed as to act firmly? I am an advocate for early education; and from the organization of the eye, and of the ear being almost as perfect at the full term of gestation as it is in the adult,* I would infer that education is ordained to be early. Indeed the first age seems to be intended for the education of the senses; the second for the improvement of the memory, and the third for the exercise of judgment: and this derives confirmation from the quicker growth of the brain in the foetus, of the limbs in childhood, and of the genitals at puberty. I have heard it stated, and I believe it, that we never acquire so much knowledge, as in the three first years of our life. These are years of observation and discovery: and as observation and discovery are almost the sole pleasure of young children, this pleasure should be encouraged. It is Nature who then teaches; and we cannot teach so well as she does. It is the habit of exercising the organs of Sense that renders them perfect. How admirably does Dr. Reid remark, that if children, from the time they begin to employ their hands, had all the Reason of a Philosopher, they could not be more properly engaged! In Roger Ascham's School Master, and in Dr. Watts's Essay on the Improvement of the mind, I have found some excellent observations on the instruction of children, which those, who have the care of them, may, I think, read with advantage. As boys,

* Bichât, Anat. Descriptive. Tome v. p. 406.

however, are often sent to school at a very early age, to learn Latin and Greek, I might here produce what a most accomplished Physician, the Baron Van Swieten, says of certain pedagogues, who, by their rigid discipline, sometimes render their scholars epileptic, or dull and silly, all the rest of their lives : but it is unnecessary : my firm belief is, that the school-masters in England show more discretion in teaching, and in correcting ; and that they never punish the weakness of nature, rather than the fault of the scholar.

We often hear of the Mind of Man being disordered, deranged, and sometimes of its being fatigued and wanting repose ; but when I speak of the Mind of Man, I allude to nothing like sensation, perception, and memory, which are of necessity connected with a particular organization, which are improved as the organization becomes developed and strengthened, and which, on the contrary, are impaired as the organization becomes weakened and decayed. When I speak of the Mind of Man, I mean nothing that is of necessity disturbed, when his brain is in any part disorganised. When I speak of the Mind of Man, I mean nothing common to him and to the lower animals ; but that higher order of intellectual faculties, by which man contemplates the qualities of objects apart from the actual assemblages of nature ; by which he connects the objects of his thoughts according to various relations, essential or not essential ; and by which he performs general reasoning ; faculties, with which brutes have never been supposed to be endowed.

It may be objected, that the operations of

the mind are manifested through the medium of the brain : but granting, that we could not be taught, that wisdom, which “ maketh wise unto salvation” without the brain, yet it does not follow, that the brain should not be the medium by which inferior qualities, as seeing, hearing, &c. are also manifested. The male urethra serves to convey semen, as well as “ the water of the feet ;” the former, then only, when the sensibility of the urethra is at a high degree : the latter, then only, when the sensibility of the urethra is not higher than usual. If the “ Breath of Life,” “ the Breath of the Almighty,” “ the Spirit which returns unto GOD who gave it,” “ the immaterial Soul” could not exist without being united to a particular organization of matter, why should its immaterialty, its separate existence, its surviving the putrefaction of the body, and its returning unto GOD who gave it, have been so much insisted on by the inspired writers ? I profess, that I believe in the life of the blood, not so much from the arguments of John Hunter, although they seem to me to be conclusive, as from the explicit assertions of Holy Writ.*

Dr. Spurzheim’s assertion, that “ the Cause “ of every Derangement of the Manifestations of “ the Mind belongs to organic Parts,” is in direct opposition to the experience of Pinel, Esquirol, Georget, and others.

Indeed, there is the evidence of the mind

* Genesis ix. 4. Levit. xvii. ii. 4.

Sallust puts Sanguis for Life (ne illis Sanguinem nostrum largiantur. Bel. Catal. §. lvii.) and other heathen writers have done the same.

itself to show, that it is never fatigued, never disordered, but always active, vivid in the decrepitude of age, and so transcendent in the very act of dying, that some of the wisest and best of men have been led to the belief, that it manifests its independence on matter, nay, its immortality, by divination, while it effects its escape from the mouldering prison of the body, to return to Him, who placed it there.* We are often told of the reason of apes, and how they like warmth, and assemble around the embers which the centinels at Gibraltar leave, after having boiled their kettles : but we have never heard, that they are led by reasoning to apply the chips, which are left near the fire, to prevent its extinction.

Of the qualities bearing a resemblance to virtue in man, which dogs, lions, and horses possess, there are well authenticated and wonderful examples, and we do not deny that some brutes possess *aliquid simile virtutis*.† And as Mr. Langstaff says, “ domesticated animals are
 “ liable to most of the morbid ulcerations of struc-
 “ ture to which mankind are prone, with this
 “ difference, that they are capable of sustaining
 “ for a greater length of time pain, and destruc-
 “ tion of parts, than the human being ;” but, he asks, “ can this be accounted for from their want
 “ of a reasoning faculty ?”‡

The reasoning of brutes, such as it is, is

* Genesis, chap. xlix. in D'Oyly's and Mant's Bible.

Petri Petiti Comment. et Animad. in secund. Aretaei Cappad. Lib. p. 160

† Cic. Fin. 5. 38.

‡ Medico-ch. Transact. Vol. ix. p. 348.

confined to particular facts and circumstances, connected with their own preservation : but man, even in what is called his mental derangement, abstracts, generalises, and exercises general reasoning, to the use of which, language, as an instrument of thought, is indispensably requisite.

After a most impartial and patient consideration of the opinions, arguments, and authorities of Physicians of the greatest celebrity, concerning madness, insanity, or whatever it should be called, and after all that I have seen of it, I am inclined to agree with the learned Dr. Mead, that both species, Melancholia and Mania, consist in the *strength* of imagination ; for as this same Physician afterwards remarks, “ there is nothing “ how incredibly silly soever, and contrary to “ good sense, but may affect a *depraved* imagination.” Now imagination is not a simple faculty : for it consists in so combining the parts of different objects as to form new wholes, which have no real existence. And if a person modify and combine the parts of different objects in so extraordinary a manner, that the new whole of his own creation gives no pleasure to any one, except to himself, and if he believe in the actual existence of that whole, then we say, that he has a depraved imagination, or that he is insane.*

* There is much truth, but much vague and unsupported assumption too, in what Richerand asserts : Le Traitement moral est de beaucoup preferable : il faut éloigner l' aliéné des Causes de son Délire, entrer dans l' Ordre de ses Idées, et l' amener peu à peu à en sentir la Fausseté. Les Idées fixes sont la Cause la plus fréquente de la Manie. Se complaire et s' arreter trop long Temps à une même Idée est le

He assumes false premises; but he does not reason incorrectly from them. It is the depressing passions, which give rise to insanity: these disorder the functions of some of the distant organs of the body, and these organs re-act on the intellectual functions, and give rise to insanity.

I shall take this opportunity of recommending a careful perusal of Dr. Burrows's "Inquiry into certain Errors relative to Insanity;" a work embracing subjects which may in vain be looked for elsewhere, and of which it may be truly said, *plus habet Operis quam Ostentationis*.

Passions. These, like the affections, are by some aptly enough divided into benevolent and malevolent, being nothing more than the affections increased beyond the bounds of moderation. Although affections of the brain, they are most felt

plus sûr Moyen de perdre la Raison: et lorsque Newton par le Force d' une Attention constante et soutenue, découvroit le Lois de la Gravitation, et atteignoit ces verites sublimes, il n' etait pas loin de l' alienation: *nullum magnum Ingenium sine Mistura Dementiæ.* Erreurs Populaires, &c. p. 197. But his countryman, Pinel, would not have spoken thus of Newton. On the contrary, he affirms, that "in consulting the Registers of Bicetre, we find many Priests and Monks, as well as country people, terrified into this Condition by the anticipation of Hell Torments, many Artists, Painters, Sculptors, and Musicians, some Poets extatised by their own productions, a great number of Advocates and Attornies: but there are no instances of Persons whose Professions require the habitual Exercise of the judging Faculty; not one Naturalist, not a Physician, nor a Chemist, and for the best Reason in the World, not one Geometrician." Davis's Translation of Pinel's *Traité sur l' Alien. Mentale*, &c. p. 114.

in the breast; and every Passion has a corresponding expression of the features, which is modified by sex, age, the state of the individual's health, his education, &c.* Haller divides the passions, not metaphysically, but physiologically, into exhilarating and depressing; the former distinguished by increased strength and frequency of the pulse, the latter by debility and retardation of the pulse.† Anger belongs to the former; grief, fear, shame, aversion and disgust to the latter. And during anger, the force of the loco-

* According to Lord Bacon, "Shame causeth Blushing. "Blushing is the Resort of the Blood to the Face, although "Blushing will be seen in the whole Breast, yet that is but "in Passage to the Face." This is by far the best account of Blushing that I have seen: for as Mr. C. Bell says, "a review of the human frame in a state of high activity, or "under the influence of passion, will convince us that the "motions dependant on respiration extend almost over the "whole body, while they more directly affect the trunk, "neck, and face." An Exposition of the Natural System of the Nerves of the Human Body, &c. p. 48. Again, "The "Language and Sentiments of every People have pointed to "the Heart as the Seat of Passion."—"Although the Heart "be not in the proper sense the Seat of Passion, it is influenced by the Conditions of the Mind, and from thence its "influence is extended, so as to mount to the Throat, Lips, "and Cheeks, &c. Ibid. p. 280.

The Cynic Diogenes, is said to have called a Blush, the *Colour of Virtue*. Aug. Buckner. Epist. Plinii Lib. iv. Epist. 17.

The word *Virtus*, is often put ironically for *Vitium*, *Flagitium*; as in Terent. Adelph. Act. ii. Sec. I. And Manutius says, "potest esse Virtus. sine Innocentia." M. T. Ciceronis Epist. ad Fam. Pauli Manutii Arg. et Annot. illust. Lib. xv. Epist. 5.

† Elementa Physiologiae. Vol v. p. 589.

Nisholls, de Anima Medica.

motive organs is increased, as well as the contractions of the heart. How both the exhilarating and the depressing Passions may produce Headach, how they may both not only cause, but also cure diseases, how they may both kill suddenly, &c. these are questions, into which I cannot enter.

It is remarkable, that both Anger and Jealousy, which consists of Anger and Fear, produce such effects, that they have often been denominated by the symptoms, or by the supposed causes of jaundice and of insanity.* But that mental affections often disorder the stomach, alter the sensibility of its nerves, produce a turgescence of the blood-vessels in its villous coat, and occasionally give rise to dyspepsia, haematemesis, scirrhus, and headach, are facts generally known. Anger and grief are, perhaps, the Passions that most frequently occasion Headach; at least I have observed them to be so.

Appetites. Hunger, thirst, &c. which are attended with a painful sensation, and are not constant, but return at intervals, being satisfied with the attainment of their object. Hunger is a frequent occasion of Faintness and of Headach,

* Cum tu, Lydia, Telephi

Cervicem roseam, cerea Telephi

Laudas Brachia, Vae, meum

Fervens difficili Bile tumet Jecur. HOR.

————— quo deinde, iusane, ruis? Quo?

Quid tibi vis? calido sub Pectore mascula Bilis

Intumuit, quam non extinxerit Urna Cicutae, PERS.

See the Notes of Ruperti on the 45th and 165th Lines of Juvenal's First Satire.

and sometimes of epilepsy, and sometimes of a temporary blindness *

Celsus asserts, that a person between twenty-five and thirty-five years old bears hunger more easily than boys and old persons : more easily in a dense than in a light atmosphere : more easily in winter than in summer : more easily, if accustomed to one meal a day than to a supper also.† It were easy to produce instances of hunger ;‡ but I shall refer to one only, Mrs. Woodcock's : buried under the snow for eight days, near Cambridge, she is said to have preserved her life by occasionally sucking the snow. And the reason, that hunger is more easily borne in a dense, moist atmosphere, than in a thin and dry one, is no doubt, that in the former, the skin inhales moisture from the atmosphere. It is easily conceived how the excitability of the system is augmented by a total abstraction of nutriment : persons who have eat nothing for several days together, have been intoxicated by a bason of broth.

Desires. Desires are constant : they neither operate periodically, nor cease entirely with the

* See Dr. Park's Paper on Hunger and Thirst in the Journal of Science, &c. No. xi.

† Lib. i. Praefatio; and also Lib. i. cap. 3. where he says, Quod ad Aetates vero pertinet, Inediam facillime sustinent mediae Aetates, minus Juvenes, minimè Pueri et Senectute confecti.

‡ Morgagni de Sedibus et Causis Morbor. Ep. xxviii.

Haller, Elementa Physiologiae. Vol. vi.

Miscellaneous Works of the late Robert Willan, M. D. edited by Ashby Smith, M. D. p. 440.

attainment of their objects. Headach is occasioned by the desire for some object, of the attainment of which there is sometimes a prospect, sometimes no prospect: when there has been a prospect, it has excited the circulation, and cured a palsy. But when very intense, it has occasioned epilepsy, and even an aneurism of the aorta.*

Sensibility fostered preposterously, whether in females, or in males; as when one cannot see a person in hysterics, without falling into hysterics one's self, or having a Headach: and is, therefore, not inured to the common occurrences of life. But I must touch lightly on so tender a subject as the modern sceptical system of polite life.

Sleep. As to the cause, and even the phenomena of Sleep, authors differ greatly:† but no doubt can be entertained, that he, who sleeps, has his volition suspended; and that sleep is favoured by the abstraction of external stimuli, as light, sound, &c. A state resembling sleep may be occasioned by pressure on the brain, as is seen in cases of spina bifida, and by whirling a person extended across a mill-stone, so that more blood may, by the centrifugal force, be driven towards his head; but it does not appear that natural sleep depends upon compression of the brain.‡ When sleep is occasioned by cold,

* Haller, *Elementa Physiologiae*. Vol. v. p. 582.

† See Dr. Park on the Cause of Sleep, in the *Journal of Science*. &c. Vol. vii. p. 238.

‡ Cullen's *Institutions of Medicine*. Part I. Physiology. §. cxxvi.

or by narcotics, it, perhaps, and the torpor are the consequence of a diminished faculty of producing heat.

Every one knows, that when a person is asleep, he is pale ; and that, if not covered more than usual, he is cold, because his power of producing heat is lessened.

All do not agree, as to the state of the pulse. Galen, and many of the earlier writers, and, indeed, some later writers, state the pulse to be slower ; but others, and among them, Dr. Browne Langrish, maintain the contrary. He says, that “ the pulses of grown persons are observed to “ beat faster during sleep, than at other times, “ the ordinary number of pulsations in a minute “ being from 70 to 80, under a state of waking “ and moderate heat, and from 80 to 96 during “ the time of sleep.”* It should seem now to be admitted that, in ordinary sleep, the nervous and muscular powers are increased by the suspension of voluntary motion ; and, therefore, that the action of the heart is fuller, and slower : but that in sleep after a full meal, the action of the heart is not only stronger, but also more frequent, by consequence of the heat disengaged during digestion, and of the stimulus of fresh chyle poured into the blood.

There can be no doubt, that the longer volition is suspended, the more the nervous and the muscular powers are increased ; for all our sensations are more vivid in sleep ; and our morning dreams are more various and vivacious than those

* The Modern Theory and Practice of Physic. p. 273.

soon after lying down. Digestion, secretion, and nutrition are more vigorous in sleep: and even plants grow more in their sleep.—Nobody denies, that perspiration is more active in sleep: and they who think, that the kidneys secrete less in sleep, have taken a very partial and superficial view of the subject. The truth is, we never make water, without wishing to do it: therefore, we do not make water in our sleep, when volition is totally suspended. Because little water is made in the morning, it does not follow that little has been secreted in the night. The deeper colour and the greater specific gravity of morning urine show plainly, that a large quantity has been secreted, the thinner and more aqueous part of which has been absorbed.*

Children sometimes wet their beds, when they sleep upon their backs, and feel such an uneasiness from the pressure of the urine upon the most sensible and vascular part of the membrane lining the bladder, that volition is in some degree excited, but not in a degree sufficient to awaken them. The ecstasy of infants in their cradles consists in an exertion to get rid of some painful sensation: and we turn in bed, without waking, to remove the uneasiness of a continued posture. In incubus, or night-mare, we imagine and believe ourselves to be oppressed by some prodigious weight, and to be almost suffocated: and we should awake, instead of having the night-mare, if our sleep were not so profound. The night-mare sometimes attacks persons in the

* Darwin's Zoonomia. Vol. i. p. 198. Vol. ii. p. 397.

night, when they are not asleep.* Headach, like epilepsy, makes its attack oftener during sleep than waking; which is, I suppose, owing to the increase of sensibility. I have known persons subject to Headach, who dreaded a protracted sleep; and who very seldom awoke from any sleep, without a Headach, unless they had freely perspired during it.

Sleep not in a recumbent posture, and at unseasonable hours, at noon especially, is noticed by very many authors, as an occasion of Headach.

Whoever would sleep comfortably, and awake refreshed by it, should go to bed betimes, with an unloaded stomach, and be more attentive than usual to the position in which he is to lie: but night-mare seldom, if ever, seizes him, who lies on either side.† He should lie horizontally, to favour the passage of the chyle into the blood: but he should lie on his right side; for then the heart neither strikes the ribs, which may occasion dreaming, nor is it compressed by the lungs; neither are the contents of the stomach, which are powerfully digested during sleep, prevented from easily passing through the pylorus.

Heat of the Atmosphere. The heat of the dry surface of a man's body in health to vary from 86° to $98\frac{1}{2}^{\circ}$ of Far. but it is one degree less in the morning than in the evening; and it may be varied by external applications and by diseases. Under the influence of some diseases, the power

* Deterius est, ubi per Noctem etiam vigilantibus incumbit. Lommius, Obs. Medicinal. Lib. ii.

† Vix unquam Incubus accidit in Latus cubantibus. Lommius, Loco citato.

of producing heat is often much increased. In a boy, twelve years old, afflicted with tetanus, Dr. Prevost, of Geneva, found it $110\frac{3}{4}^{\circ}$; but the Editor of the Edinb. Med. and Surg. Journal rarely found it in continued fever, scarlatina, measles, and small-pox, above 105° , in, perhaps, half a dozen instances 107° , and once only $107\frac{1}{2}^{\circ}$.* This is more remarkable, since Dr. Currie found it in scarlatina as high as 112° .

It has been supposed, that man, and the more perfect animals in health, preserve their temperature in all the varieties of season and climate : but the contrary seems now to be fully proved : the greatest variation observed between Summer and Winter, by Dr. Edward's, was in the case of the Sparrow ; the mean of several experiments gave $105^{\circ}.33$. for February, $107^{\circ}.5$. for April, and $110^{\circ}.75$. for July.† Nevertheless, during health, a room heated to 200° . does not raise the temperature of our bodies three degrees, although an animal dies sooner in a warm atmosphere than in a cold one, perhaps, because the blood then passes through the capillaries not sufficiently decarbonated. Man certainly could not long sustain a heat of 210° , 224° , 240° , and even 260° , although there are instances of his having endured it for some time. But a close, crowded, and heated room occasions langour and lassitude, giddiness, a mist before the eyes, sometimes a bleeding at the nose, or if these

* Edinb. Med. and Surg. Journal. Oct. 1824. p. 363.

† See the Edinb. Med. and Surg. Journal of Oct. 1824. p. 332. for an account of Dr. Edward's Experiments on the Influence des Agens Physiques sur la Vie, &c.

effects do not occur, a Headach, or a fit of apoplexy. The atmosphere of such a room, besides being rarefied, and containing less oxygene in a given volume, is loaded with moisture, so that although the matter of perspiration is condensed into drops upon the skin, yet perspiration is diminished, and the power of resisting heat is diminished.

The power which the body possesses of supporting changes of climate, is rather a change in the power of producing heat, which is greater on going into a cold climate, and less on going into a hot climate, than the difference of evaporation in different temperatures. Dr. Currie supposes the remarks of Dr. M'c Kittrick Adair, “ that the “ heat of the European on his arrival in the West “ Indies has been observed to be three or four “ degrees higher than that of the natives, or of “ those accustomed to the climate, to which, “ however, it gradually sinks in the course of “ time,” to be one of those inconsiderate observations by which medical science is so often corrupted. Dr. Currie was led to this supposition by the experiments of Dr. Chisholm, in Demerary, which contradict Dr. M'c Kittrick's remark :* but the more accurate experiments of Dr. Davy, at Ceylon, confirm Dr. M'c Kittrick's remark.†

The *Sun*. Solar Heat was very early found

* Medical Reports of the Effects of Water, cold and warm, &c. Vol. i. p. 279.

† An Account of the Interior of Ceylon, &c. by John Davy, M. D. F. R. S. Part iii.

to be sometimes an occasion of Headach.* Sauvages is uncertain whether the Headach from insolation should be placed among his species of Cephalalgia. He says that, on opening the head of such as had died of it, he found nothing amiss. *Secto Capite, nihil laesi inveni.*† It should, I think, be treated by prompt and large depletion, and by cold applied to the head. I restored a neighbour of mine from Coup de Soleil by such means, applying the same mixture of muriate of ammonia, nitrate of potass, and water, in a bladder to his head, as Sir Astley Cooper uses at Guy's Hospital, in cases of strangulated hernia.

Cold. Persons are said, by Mons. de l'Isle, to have lived at Kirenga, in Siberia, in an atmosphere, when the thermometer stood at 118° below 0 of Farenheit.‡ We know, however, that persons die, if they fall asleep in an atmosphere even 12° above 0 . Extreme parts, as the toes, fingers, ears, nose, &c. in winter, are many degrees colder than our arms and legs: but our internal parts are seldom below 96° .

Headach is more frequent in winter and during cold weather, and damp, when the skin is pale, the perspiration is diminished, and the

* The Bible. Judith. chap. viii.

Morgagni de Sedibus et Causis Morborum, &c. Epist. v. §. 13. vi. §. 5.

Hunter on the Diseases of the Army in Jamaica, &c. p. 100.

Selle, Rudimenta Pyretologiae Methodicae. p. 141.

Bichât, Anatomie Generale. Tome i. p. 34.

† See his Species Cephalalgia Anemotropa, and Carus ab Insolatione.

‡ Martine's Essay towards a Natural and Experimental History of the various Degrees of Heat in Bodies.

whole body occupies less space, as is shown by rings then dropping off the fingers. And then, while less blood flows to the surface of the body, more must by consequence be circulating within it; and circulating irregularly. It is in the beginning of winter principally that Headach, vertigo, and apoplexy, are more frequent, or when the weather becomes suddenly hot, after having been long cold and damp, as Morgagni remarks, speaking of Anthony Tita. He thinks too, that, in hot weather, the blood is greatly expanded.*

I have seen several cases of mortified feet from extreme cold; and I could never learn from the patients that they had felt a pain in the head. They could recollect the sleepiness only, which they described as a sort of Coma: and we are told that those who have died of cold have had the vessels of their dura mater turgid with blood, and its ventricles containing a collection of lymph. Extreme cold certainly diminishes the nervous and muscular powers: as is clear from the peculiar lassitude felt on very high mountains, which is, I believe, rather a degree of Asphyxia; for the atmosphere there being rarefied, contains very little oxygene to support animal heat; and they who suddenly die, fatigued by climbing those mountains die with all the signs of suffocation,† and, perhaps, with their sensible cold greater than their thermometrical. But if their nervous and muscular powers be diminished by any other cause than cold, the skin turns pale, and the body

* Morgagni de Sedibus et Causis Morborum. &c. Epist. iii.

† Saussure. Journal de Physique. Sept. 1788. p. 209.

shrinks. Dr. Martine was pale, all-shivering, and suffering a great degree of cold in the beginning of an ague fit; and yet his skin was 2° or 3° warmer than in a natural and healthy state.

Mr. Brodie thinks, that cold “causes contraction of the capillaries, and thus lessens the superficial circulation, and stops the cutaneous secretion:” but I would account for the diminution of the superficial circulation, and the suspension of perspiration in another way. For it does not appear to me, that the capillaries are contracted or collapsed, if this word be taken in an active sense, or that the skin is contracted, condensed, and hardened, as inanimate matter is, by the most intense cold of this climate, or by such evaporating lotions as we occasionally apply to it; but that it is rendered flaccid, loose, and wrinkled. Nay, and I suspect that the sum of the areas of the capillaries on the surface of the body, instead of being diminished, is rather increased by extremely cold weather. The truth seems to be this, that the heart sends the blood as far in cold weather as in hot; that is, as far as the capillaries, but no farther; and that the circulation in the capillaries of the skin is lessened, or suspended, in cold weather, in part because the arteries supplying them with blood, send it to them with diminished power; and in part, because those capillaries themselves have their action suppressed: so that the blood, which they may have contained, is absorbed from them by the beginnings of the veins.

It must follow, however, the quantity of blood in the body remaining the same, not only

that when the capillaries of its surface contain less blood, more must be circulating within it, but also, as a diminution of the heat of the skin is attended with a diminution of heat to a greater or less depth within it, that the weak internal parts, whether belonging to the original composition of the body, or superadded to it, by consequence of injuries or diseases, must contain so much more blood than the strong internal parts, as gives rise to pain and disease : so that, I would thus account for Headach being occasioned by cold : its effects on the skin extending inwards, and diminishing the tonic power of the blood-vessels of a weak part, these blood-vessels become dilated, and subject to an enormous distension, by which the parts contiguous with them are compressed. The pain is, perhaps, not felt during the benumbing influence of the cold, but afterwards : for those who are exposed to cold, feel no pain, but sleepiness ; and if they fall asleep in the cold, they sleep to death.

Coldness of the feet, from standing upon a damp pavement, is often noticed as an occasion of Headach : but I believe a Headach is as often incurred by the exposure of any part, which is usually covered, to a damp cold wind. Coldness of the face, and even of the hands, although they are more exposed to vicissitudes of temperature, is often followed by indigestion and headach in winter ; because, as I suppose, of the great sympathy between them and the stomach. The skin of the face sympathises more than that of any other part with the stomach, as is no less evident from the eruption on it after a draught of

cold water, when one is heated, than from the gutta rosea of drunkards.

But I cannot help remarking, that acute rheumatism, cough, quinsy, pleurisy, and other diseases most prevalent in winter should seem, from the experience of those most able to make correct observation, to be occasioned not by mere exposure to cold, but by the sudden exposure to heat of parts, the temperature of which is lowered. I would appeal, however, to common observation: for who does not remember persons flying to the fire, scorching their faces and their shins, and calling impatiently for hot, perhaps for spiritous drinks, after having been exposed to bitter cold, and cutting wind, who were not then seized with a hoarseness, or in the night with a pleurisy, or the next morning with a quinsy, an acute rheumatism, or some other inflammatory disease.

I am not obliged to speak here of cold as a stimulant, curing Headach, convulsions, asphyxia, from opium, from the fumes of charcoal, &c. but it is common to hear persons, talking of cold applied to the surface of the body producing a determination of blood and of heat to internal parts, so that if the internal part be a vital part and inflamed, its inflammation must be increased, and danger must be the consequence. This reasoning would be correct, if a living, healthy body could be compared to a dead, dried sponge. But allowing that cold applied to the surface of the body is in course followed by an increased quantity of blood in the internal organs, is it also followed by an increased heat in the internal or-

gans? I know no fact to prove that the blood is determined or driven inwards, when its surface is exposed to cold; but believe that it flows inwards by consequence of the diminution of tonicity, and the enlargement of the internal blood-vessels. Nay, and I am convinced, that when the heat of the surface of the body is diminished, that of its inside is diminished likewise. Thus it is that folds of linen soaked in cold water or in solution of muriate of ammonia laid on the skin, which render it cold by their evaporation, abstract heat, and diminish the sensibility of internal parts, so as to check inflammatory action, and the growth and increase of tumours. Inflammation of the brain, of the pleura, of the intestines, of the kidneys, &c. have all, if I am not mistaken, been checked by cold applied to the skin.

I am not ignorant that in cases of costiveness, the removal of it, when following the effusion of cold water to the lower extremities and the abdomen is by some attributed to a relaxation of the intestines, and an increase of their secretions, depending upon the sudden contraction, as they say, of the skin from cold. But not in ileus only, but also in enteritis, nephritis, &c. I have known cold water, and in one case of arachnitis a mixture of nitrate of potass and muriate of ammonia with water, applied to the skin, a most successful remedy, acting, I have no doubt, by producing a sympathy through the brain, of the diseased part with the skin: in ileus perhaps by stimulating the skin and the bowels, and occasioning a greater secretion into the latter; but in enteritis, and other internal inflammations, by diminishing

the sensibility and heat of the skin and of the inflamed parts. I do not say all this from theory : for I have many years relied more on the application of cold water and on blood-letting in enteritis than on any other remedies, and it is now more than thirty years ago since I ordered the application of cold water to the abdomen of a youth, who is now a distinguished officer in his Majesty's Service, and so saved his life, after it had been asserted, that the whole College of Physicians could not save it.

The *Weight of the Atmosphere* has great influence on us, when it is either suddenly increased, or suddenly diminished : and it may be assumed as a fact, that the more the vital powers are diminished, the more we are affected by mechanical and chemical powers. Thus, when there is a low state of the barometer, or a very light state of the atmosphere, we hear those, who were well before, complaining of dullness and inactivity. Caelius Aurelianus says, that patients with Cephalaea, when they sit down, are seized with giddiness, dimness of sight, nausea, and vomiting of bile ; and Dr. Wollaston, that seasickness depends upon the subsidence of the vessel upon the wave that supports it, during which the blood presses suddenly and with unusual force upon the brain. On the other hand, Dr. Wollaston remarks, that rising suddenly from one's seat, is sometimes followed by a giddiness, and a diminution of muscular power, amounting almost to fainting, because then the pressure of the blood is too quickly withdrawn from the head. Sea-sickness is certainly owing to the

stomach sympathising with the brain. Ever since I read Dr. Wollaston's Croonian Lecture, I have occasionally desired my patients, when labouring under a Headach, to make deep inspirations; and I have frequently known them to be relieved by it.

Wind is often accused of occasioning Headach: and I have known it to be justly accused, when the patient had walked, or had ridden against it. But I am not certain, that I have not known a Headach from a want of wind; from what Hoffman calls *diuturna humidaque austrina Aeris Intemperies, praesertim Ventis vacua*. It has been repeated from very early ages, that a moist warm wind from the south is an occasion of Headach. Of the peculiar qualities of different winds, our knowledge is at present, I believe, not very correct.* Sauvages says that, where he lives, as often as the south wind blows, the electricity of the atmosphere vanishes; and that the Headachs depending upon it are immediately cured by electricity.†

Celsus says, pains of the head and forehead from wind, or cold, or heat, are put a stop to by a *gravedo* and sneezing.

Hair of the Head. This has more uses than one. It diminishes the effect of blows and falls on the head, by its mass and density: from its oiliness preventing moisture from adhering to it,

* See some valuable Remarks on the Sciroc Wind, by Sir Brooke Faulkner, M. D. &c. in the Topographical Sketch of the Island of Malta, prefixed to his Treatise on the Plague.

† See his *Species Cephalalgia anemotropa*.

and from its being a bad conductor of heat, it preserves the head of an uniform temperature : and from its being a bad conductor of electricity, it preserves the head in an insulated state. I have known several instances of Headach in persons, who had become bald, although they had never had a Headach before ; and I have known several instances of Headach, which were cured, even in young persons, by shaving the head, and which returned as soon as the hair had again grown the length of an inch.

Bichât speaks of the danger of cutting the hair after acute diseases, of which he had seen one example, and Lanoix more. Nay, he says, it is often dangerous in desperate diseases to clear childrens heads all at once of vermin.*

Compositions are frequently advertised for changing the colour of the hair, which they burn or char : but they sometimes occasion dreadful Headachs, and even epilepsy, in which cases, the head, some say, should be shaved, blistered, &c.

Skin and *mucous Membrane* contain the whole body ; the former covering its outside, and the latter lining all those cavities which have a natural opening. The skin and the mucous membrane have a great sympathy with each other ; and most cutaneous eruptions, as small-pox, measles, miliaria, usually considered as primary affections are now thought by most to be merely sympathetic of an affection of the mucous membrane of the lungs, or of the alimentary canal.

* Anatomie Generale. Tome iv. p. 816.

The nerves of the skin are from the brain and spinal marrow, and of the mucous membrane principally from the ganglions.

The extent of the skin may be judged of from this, that Hales computes the surface of a man's body at a medium to be equal to 15 square feet.* Perspiration, and the obstruction of it, of which De Gorter has found in Sanctorius no fewer than thirty-two causes, to which we are every day exposed, I shall purposely pass over; although dysentery may be traced to an over-loaded state of the mesenteric vessels, and of the vena portarum, consequent to the natural excretion from the skin being interrupted. But I cannot pass over absorption from the skin and mucous membrane: for as painters, plumbers, glaziers, potters, smelters, printers, gilders, silverers of mirrors, enamellers, workers in certain manufactories, mines, caverns, wells, &c. are more or less afflicted with Headach, cholic, palsy, &c. it is not improbable that their skin and their mucous membrane may absorb the substances to which they are exposed.† Mr. Abernethy has fully proved that the skin has the power of occasionally absorbing and of exhaling certain gases;‡ and Mons. Magendie asserts, that an animal may be poisoned by poisonous substances applied to

* Statical Essays, containing Vegetable Staticks. Edit. 3rd. p. 242.

† See Dr. Fothergill on Disorders to which Painters in Water Colours are exposed, in Med. Obs. and Inquiries. Vol. v. p. 394.

‡ Surgical and Physiological Essays, Part ii. Edit. 1793.

its tunica conjunctiva.* Perhaps, all effluvia and gases are more deleterious during the night ; for a horizontal position, fatigue, ebriety, as well as fear, hunger, a vegetable diet, venesection, purging, &c. are all said to favour absorption.

Carbonic acid gas cannot be respired, because it occasions a spasm of the epiglottis, which shuts up the glottis.† The atmosphere, near the surface of the earth, contains about $\frac{1}{1000}$ of carbonic acid gas ; but on the summit of the Peak of Teneriffe, the chemists who accompanied La Perouse, in his last voyage, could detect none.

All agree that the atmosphere contains, in 100 volumes of it,

21 of oxygen gas, weighing $23\frac{1}{3}$, and

72 of azotic gas, weighing $76\frac{2}{3}$;

that no other proportions can be substituted for these, and that they are in a state of mixture, not of chemical union. It is astonishing, that the atmosphere on the highest mountains does not contain a greater proportion of oxygen than that in our manufactories and hospitals : but, perhaps, no stronger proof, that these are the fittest for respiration, can be given.

An animal cannot live in an atmosphere deprived of oxygen : neither can a fire burn in it : but an animal lives too fast, if the proportion of oxygen in the atmosphere be increased and bodies burn too fast there, and are sooner consumed. In recovering persons out of the asphyxia from

* Précis elementaire de Physiologie. Tome i. p. 42.

† Morgagni de Sedibus et Causis Morbor. Ep. xix. §. 39.
Thomson's System of Chemistry.

submersion, it should seem that oxygen gas is too powerful a stimulus for the inflation of the lungs. Low and damp situations, those in particular where agues are endemial, are the best for consumptive patients.*

The *Vapour of burning Charcoal* is destructive of animal life, because it consists of carbonic acid gas, which prevents inspiration, with a portion of carburated hydrogen gas, which can be inspired, but is a deadly poison. Dr. Babington, with whom, in the early part of my life, I had the good fortune to be an inmate, and to whom I am indebted for much that I know, succeeded in restoring from an almost lifeless state, a waiter, who had slept in the Vapour of Charcoal; and his history of the case, and his reflections annexed to it, are admirable, alike for their practical importance, and for the unaffected simplicity of their language.†

Bichât says, that the first effect of the Vapour of Charcoal is a more or less violent pain in the head:‡ and this he attributes to the mere contact of blood not decarbonated with the brain. But granting that the Vapour of Charcoal does produce a pain in the head, I would attribute this, not to mere black blood, as Bichât calls it, coming in contact with the brain, but to blood im-

* Dr. Wells, in “Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge.” Vol. iii.

† Medico-chirurgical Transactions. Vol. i.

‡ That the first bad effect of the Fumes of Charcoal is to be referred to the Head, and not to the Lungs, was known to Van Helmont. Van Swieten, Comment. in Boerhaavii Aph. §. 1010.

pregnated with carburated hydrogen. However, it can scarcely become so impregnated, if one be either on the same level as the burning charcoal, or below that level, for then the vapour containing $\frac{1}{20}$ of carbonic acid, the glottis must be closed by it. The thermometer standing at 60° , and the barometer at 30 inches, the specific gravity of carbonic acid is to 1.000 as 1.527, and of carburated hydrogen as 0.555; so that it should seem as if the Vapour of Charcoal kills those who are recumbent in it, by excluding oxygen from the lungs, and those who are not recumbent in it, by its carburated hydrogen being inspired, and passed into the blood.

When a person is insensible and motionless, and his respiration is suspended, by consequence of the Vapour of burning Charcoal, he may be considered, like one who has been under water, as having but a few minutes to live. If his respiration be not restored during these few minutes, his heart ceases to beat, and then his life is irrecoverably gone.* He should, therefore,

Presque tous les Malades qui ont servé à cet Accident, surtout lorsqu 'il est déterminé par la Vapeur du Charbon, disent avoir ressenti d'abord une Douleur plus ou moins violente à la Tête, Effet probable du premier Contact du Sang noir sur le Cerveau. Ce Fait a été noté par la plupart des Auteurs qui ont traité cette Matière. Recherches Physiologiques sur la Vie et la Mort. p. 232.

Burns also places a Pain in the Head among the symptoms denoting a mixture of venous with arterial blood. Observations on some of the most important and frequent Diseases of the Heart, &c. p. 5.

* Mr. Brodie thinks " that it is extremely doubtful whether " the heart ever continues to pulsate for so long a period as

be carried into the open air. or into a spacious room, where the air is pure; and attempts should be made to revive his respiration by inflating his lungs, by dashing cold water in his face and against his breast, by the application of ammonia to his nostrils, and by warmth, conveyed both by glysters, and by the warm bath, or hot flannels, and as the bladder is said, by Portal, to be distended in persons dead of asphyxia, it may not be amiss to have the catheter introduced as soon as possible.

Hunch-backed Persons are often the subjects of Headach. Morgagni relates the case of a young man at Venice, in whom all the vertebrae, from the lower part of the neck to the os sacrum were so bent to the left side, that the middle of the curvature was more than seven inches distant from a right line drawn from one of those points to the other: and the descending aorta was bent as the spine was. On dissection, for he had fallen down and died in the street, perhaps, because he had been indulging in inebriating liquors, his heart was found to be enlarged, its right auricle to contain a polypus, its ventricles coagulated blood: the longitudinal sinus of his dura mater a polypus concretion, and the lateral sinus of the right side grumous and coagulated blood, &c. It is not said, that he had been

“ five minutes after the lungs have ceased to perform their
 “ office,— and very questionable whether in most instances,
 “ the interval is not considerably shorter than this.” But
 Dr. Roesler has succeeded in resuscitating animals completely
 asphyxiated by immersion in water for $5\frac{3}{4}$, $9\frac{1}{2}$, and $11\frac{3}{4}$ minutes, and deprived of the access of air to the lungs for six minutes longer. Edin. Med. & Sur. Jour. Jan. 1825, p. 209, &c.

affected with Headach : but considering the inflections of the aorta, and the consequent impeded motion of the blood in it, as he was a drunkard, Morgagni would not have wondered, if he had found some of the blood-vessels within his cranium ruptured.*

Shoe-makers, Tailors, and all sedentary Artificers, whose trade obliges them to lean their body forwards, and to compress the abdominal viscera, are very liable to Headach, because in them more blood is sent towards the head always, and on some occasions more than on others.†

Stays rendered stiff with rods of whalebone, and all tight ligatures around the thorax, or the abdomen, may occasion a Headach, by interrupting the return of blood from the head :‡ but on this subject, I shall not dilate here, having done it elsewhere.§ If, however, a determination of blood to the head be an occasion of Headach in adults, may it not be the same in infants, whom I have often seen bound up very tightly ; may not Hydrocephalus be occasioned in some by it ? other diseases may.||

Metastasis is a word, which was once used to express the removal of morbid matter from

* De Sedibus et Causis Morborum, &c. Epist. iv. §. 16. 17.

† Ibid. Epist. xviii. §. 4.

‡ Ibid. Epist. xxvi. §. 23. Epist. xxxviii. §. 55.

§ An Essay, Philosophical and Medical, on Modern Clothing, sold by the Robinsons, Paternoster Row, in 1792.

|| Boerhaave pluries vidit Haematuriam in Infantibus à Fasciis et Vestibus arctioribus oriundam. Sauvages Noso. Method.

the place it occupied to another : it is now used to signify the sudden disappearance of a disease in one part, and the sudden appearance of a disease in another ; and no reference to a morbid matter is implied, but to a morbid action. This, however, is incorrect : for when a disease leaves one part, and another part is suddenly affected with a disease, it is not because the action in the former part is transferred to the latter ; for every part has its own sensibility, and its own mode of action, whether it be in a healthy, or in a diseased state. I said, that I should speak of a *gouty Headach*. When the gout suddenly quits the first joint of the great toe, or any other joint, and a Headach arises, the Headach is called a gouty Headach. But the gout is a constitutional disease giving rise to local and external inflammation, or to inflammation of the ligaments, of the bursae mucosae, of the sheaths of tendons, and of the aponeuroses of the smaller joints : and the stomach is perhaps always disordered, when the gout quits another part, before it is said to affect the head. Does it therefore follow, that the disorder of the stomach, and of the brain, is gouty ; that the same action exists in the stomach, and afterwards in the head as had existed in the joint of the great toe ? there is nothing like ligament, in the stomach and in the brain. But the gouty Headach is said to have killed by apoplexy, which, if it were true, would always lead us to attempt the cure of the Headach, called gouty, by blood-letting. I believe this Headach generally depends upon the stomach, and is to be cured by stimulants and

antispasmodics. Such means I have known to succeed : and I have never seen a case of Head-ach, attributed to retrocedent Gout, in which I could consider myself as authorised to order venesection, cold applications to the head, &c.

Headach often arises from the *sudden healing of ulcers*, the *sudden recession of exanthemata*, the *sudden suppression of the haemorrhoidal discharge*, or of any other that is become *habitual*. Even a suppression of the discharge from the feet, which is so offensive, has been followed by a violent Headach* and vomiting, premonitory of apoplexy. A sudden suppression of acrid, watery, bilious, and green, or bloody and slimy discharges from the bowels of children, by opium and astringents, has been followed by that Headach, which produces a fluid in the ventricles of the brain. It was long ago ascertained by Dr. Clarke, of Dublin, that the best remedy for these discharges from the bowels, is hydrargyri submuriæ, in small doses. The sudden suppression of the Catamenia, I shall speak of hereafter ; but it, and the sudden suppression of milk, during lactation, are universally known to be occasions of Headach.†

Convalescents. Persons recovering from diseases, whose appetite is keener than usual, who are crammed with delicacies, and whose blood is, perhaps, made too fast, have often a Headach, convulsions, or a fatal coma, occasioned not

* Medico chir. Rev. Sept. 1822. p. 401.

† Hemicrania in Feminis lactantibus ubi ipsis Mammis, ubi Lac aut retineatur, aut putrescat. Nic, Piso, de cognoscend. et curand. Morbis. Lib. i. cap. 8.

only by the quantity and the quality of their food, but also by the *premature administration of stimulant medicines*.

All have not the sense to see, that in proportion as the weakness of a patient is greater, the stimulus of his food and of his medicine should be weaker: and yet examples of the sudden extinction of vitality, after extreme cold, by the application of heat, after long fasting by the exhibition of wine, and nourishment, &c. must be known to every one.

Beer, ale, wine, brandy, &c. often occasion a Headach, not from their containing alkohol only, but also other poisonous substances.*

The *Amputation of a Limb* has been followed by better health: but it has also been soon followed by a Headach, which yielded to blood-letting and a spare diet; and Boerhaave and his Commentator, Van Swieten, talk of the too great chylication and sanguification of those,

* *Wine* is said to occasion Headach in those more especially, quibus Caput est parvum, et quibus angusta est Pars ipsius anterior. Nic. Piso, de cognoscend. et curand. Morbis. Lib. i. cap. vi.

Port, Madéira, and Sherry contain, according to Mr. Brande, from $\frac{1}{4}$ to $\frac{1}{5}$ their bulk of Alkohol: so that he who drinks daily a bottle of Port, drinks daily almost half a pint of pure alkohol, which is equivalent to a pint of Brandy. Journal of Science, &c. Vol. iv. art. xiii. and Philosophical Transactions for 1811 and 1813. Alkohol acts on the brain through the pneumo-gastric nerves, and occasions coma and insensibility; as opium does: they both destroy the functions of the brain, so that they kill by bringing on suffocation.

who have lost a large limb.* Mr. Foot, according to John Hunter, was relieved of a Headach of long standing, by the loss of a leg, but died afterwards of a complaint in his head, very similar to apoplexy.† And in all such cases, if apoplexy occur and terminate fatally, there is a previous disposition; for stumps are very liable to pain and spasm, which by nervous communication affect the brain more especially.

If a person have the Predisposition, not to Headach, but to Haemoptoe, the loss of a limb may occasion Haemoptoe.‡ Pulmonary consumption is, I believe, not uncommon after the amputation of a limb.

I shall next speak of affections of the thoracic, the abdominal, and the pelvic viscera, which may occasion a Headach: and I shall begin with the Heart and the Lungs, because they are contiguous organs.

Not only the Heart and Lungs, but also the stomach, the larynx and the pharynx have their nerves from the eighth pair, the par vagum, or pneumo-gastric nerve, and are by this nerve connected with one another. Nothing is better known than that diseases of the lungs affect the heart. The lungs, the heart, the stomach, the larynx and the pharynx, which are associated by the par vagum, have nerves from other sources.

A division of the par vagum on each side at the height of the thyroid gland destroys the

* Commentar. in Aphorismum 474.

† A Treatise on the Blood, &c. p. 332.

‡ Nosographie Philosophique, ou la Methode de l'Analyse appliquée à la Médecine, par Ph. Pinel. Tome ii. p. 519.

voice, excludes air from the larynx, causes a collection of phlegm in the bronchia and air-cells and prevents the passage of the blood from the pulmonary artery into the pulmonary veins ; so that, after death, the venous system is found to be distended, with blood, and the arterial to contain very little.

A division of the par vagum only does not destroy the functions of the heart : neither does a destruction of the spinal marrow only : therefore, the power of the heart is independent of both, as is also the action of all the muscles of involuntary motion ; but the heart may be influenced by stimuli applied to either, and by affections of the mind. The proper stimulus of the heart, is the blood.

A division of the par vagum in the neck, or of the stomachie plexus immediately above the cardiac orifice of the stomach suspends the secretion of that fluid, upon which the digestion of food depends.

But it is not a mere division of the par vagum that intercepts the nervous influences, and produces these effects on the lungs, the heart, the stomach, &c. for if the cut ends be not more than $\frac{1}{4}$ of an inch asunder, those effects are not produced.

Such however is the consequence of the lungs, the heart, and the stomach, receiving their nerves from a common source, that if one of them be irritated, they may all be disordered, or one only of them may be disordered, and not the one that is irritated. Thus the stomach being irritated, every part receiving nerves from the

par vagum may be disordered ; or the lungs only may be disordered. Persons have been deemed consumptive, when the stomach only was irritated. Coughing, hickuping, &c. often depend upon irritation of the stomach. Such is the connection between the functions of the lungs, the heart, and the stomach, that it is sometimes impossible to tell which of the three is primarily affected : extensive and close adhesion of the pleura costalis and pleura pulmonalis, and pressure on the bronchial cells by fluids effused, or by tumours formed in the thorax, and by enlargements of the abdominal viscera, or collections of fluid in the peritoneum, produce the same symptoms as an affection of the heart does, although the heart may be altogether free from disease. And it may not be amiss to remark here, that inflammation, induration, wounds, abscess, ulceration of the heart have all existed, without betraying themselves by pain or any diagnostic sign.

It may be necessary, in inquiring after the cause of diseases of the chest, to remember that in perfect health, when respiration is not at all disturbed, the middle of the diaphragm extends on each side as high into the thorax as the fourth rib ; and by consequence that a part of the cavity of the abdomen is in the thorax : for when the stomach, or the intestines are distended with flatus, or the liver is enlarged, or the pancreas is grown out into tumours, like apples as Morgagni says,* or there is an ascites, both the ascent and

* De Sedibus et Causis Morbor. Epist. xv. §. II.

descent of the diaphragm must be more or less impeded.

Mr. Abernethy has shown how the degree of obstruction in the lungs may be easily ascertained, assuming that in a state of health from six to eight quarts of air may be expired at once.

The *Lungs*. I shall consider affections of the Lungs before those of the Heart because inspiration is essentially necessary to the commencement of animal life, and to the restoration of it when suspended, as from drowning; for when a person is dying, his inspiration is always laborious, and becomes more and more so till his muscles of respiration cease entirely to be actuated by the nerves belonging to them. Expiration, in which death takes place, is the natural consequence of the inability of the respiratory muscles to continue their action. In short, death never takes place, without a disordered state of respiration.

The Lungs themselves are absolutely passive; respiration, as far as regards the office of the Lungs, being performed when undisturbed, by the intercostal muscles only.

As often as a person is obliged by exercise, or by passion, or by violent efforts, to make sudden, deep, and quickly repeated inspirations, so often are his shoulders raised at every inspiration, and we see that in running, declaiming, singing, playing on wind-instruments, laughing, crying, coughing, sneezing, &c., his glottis, larynx, pharynx, nostrils, and lips are in action; while there is not only an accumulation of venous blood on the right side of his heart, in his pulmonary arte-

ry, in his internal jugular veins, and in the sinuses, of which those veins are continuations, but also a passage of blood too little decarbonated into his pulmonary veins, the left side of his heart, and his aorta. Hence the Headach, the giddiness, and the degree of insensibility occasionally felt in disturbed respiration from any cause.

I knew one who died, while he was in a dance, as suddenly as if both his phrenic nerves, and his spinal marrow at the lower part of his neck had been divided.* But, after violent and long continued exercise, the heart palpitates, the chest feels constricted, the eyes are prominent, the lips, ears, nose, tongue, and the parts beneath the nails, are all of a very dark and livid colour, the cause of which is, no doubt, the mixture of venous with arterial blood.

Coughing is a quick succession of expirations more or less violent and more or less sonorous; depending upon an irritation of the extremity of one of the respiratory nerves, by consequence of which irritation all the muscles influenced by these nerves are thrown into violent action. It is not generally known, how great a velocity in the current of air is required, in the simple act of expiration, when the glottis is irritated, to dislodge any thing attached to the membrane lining the bronchia, and of the manner in which this degree of velocity is obtained. It should seem, however, that this degree of velocity is obtained by closing the glottis, till the air within the

* Ramazini de Morbis Artificum. Cap. xxxv.

Morgagni de Sedibus et Causis Morborum, &c. Epist. lx.
§. 8. 9.

lungs is a little condensed, and then by suddenly opening it. Dr. Young says “it is demonstrable, that the velocity produced by the expansion of the air thus condensed, may easily be very considerable ; a force, for instance, sufficient to support a column of a quarter of an inch of mercury only, being capable of causing a velocity of about 120 feet in a second, which is greater than that of a violent gale of wind.”

Coughing is a frequent occasion of Headach ; and has occasioned apoplexy. Two ounces of the brain of a girl about thirteen years old were forced through a cicatrix in the integuments, after the loss of about four inches of the cranium, by a violent fit of coughing ;* so great was the pressure of the brain against the bones of the cranium.

But although coughing often depends upon the irritation of some extraneous body lodged at either edge of the rima glottidis, and is no more than an effort of nature to shake it off, which requires the simultaneous action of all the muscles of incited respiration, yet it is sometimes to be traced to the irritations of some part very distant from the glottis, and even from the thorax. Thus, it is no weak proof, of a cough being occasioned by something in the lungs, that the pharynx is hot and painful, when the cardia is irritated by an acid in the stomach ; that the opening of the ductus communis cholidochus is in pain, when a stone is in the hepatic duct ; that the glans penis of men, and the clitoris of women are in pain, when there is irritation at

* Edinb. Medical Essays and Observations, vol. ii. p. 245.

the vesical end of the urethra, &c. And that a cough may be traced to the brain, the whole pulmonary system being perfectly free from disease, we may believe on the authority of Vesalius and Lehelius,* to the frontal sinuses, on that of Lieutaud; to the vagina, on that of De Haen; &c. since nobody hesitates to admit that there is a cough from worms in the bowels, from affections of the liver, of the stomach, of the kidneys, of the bladder, of the uterus, &c. All coughs, that are sympathetic, are without expectoration, at least in the beginning.

Laughter is not, as some assert, peculiar to the human species. Dogs laugh, although their laughter is not like that of man. Be this as it may, if the laughter of persons be violent and long continued, it very often leaves behind it a pain in the head; and has been known to occasion apoplexy, epilepsy, &c. The stoic chrysippus, we are told, died of laughter at seeing an ass eat figs from a silver platter, when some wine was brought for it to drink; and one of the Popes at seeing a monkey adorn itself with the holy tiara.

The Heart. I cannot persuade myself, that a pain in the head is ever occasioned by the increased action of the heart, unless the brain be predisposed to it: for how often do we see the temporal arteries beating violently from exercise, and how often may we have heard the complaint of a sensation of fulness at the temples, in the

* Morgagni de Sedibus et Causis Morbor. Epist xix. §. 54. &c.

parotid gland, at the foramen caroticum of the temporal bone, and at the foramen spinale of the Sphenoidal bone, where the meningea media enters the cranium to be distributed in the dura mater, as the superficial temporal artery is in the skin, all without any pain in the head ?

What can we know for certain of the force of the left ventricle in health, when Borelli compares it to that necessary to raise a weight of 180,000 pounds ; Hales a weight of 51 pounds, 5 ounces ; and Keil a weight of only from 5 to 8 ounces ?

When an aneurism of the heart is active, that is, when the sides of its ventricles are augmented in thickness, and contract with greater force, their cavities being at the same time enlarged, it is not to be wondered at, some say, that it should sometimes be an occasion of apoplexy. It is the left ventricle, that is oftener the subject of active aneurism : and it is naturally the stronger of the two. But when there is any obstacle to the course of the blood from the left ventricle, it redoubles its efforts to overcome that obstacle ; and its nutrition is by consequence increased. Corvisart asserts without hesitation, that the most frequent organic diseases, those of the lungs excepted, are those of the heart ; and Bichât says that diseases of the heart, and aneurisms of the aorta were remarked by Desault to be multiplied during the French Revolution, in proportion to the enormities it gave rise to.

But if Hypertrophy of the left ventricle of the heart may be the occasion of Headach, and of apoplexy, can it be the occasion of either, if

there be not the predisposition to either? Can it first produce the predisposition to Headach or to apoplexy, and afterwards be the occasion of it? I know no proof, that it ever produces the predisposition. In the case of Baglivi, and of Cabanis, the former sixty-six or seventy years old, and the latter having already had a fit of apoplexy, they might both, I believe, have been cut off by this disease, if they had had no enlargement of the left ventricle of their heart. Richerand, therefore, has not, in my opinion, traced apoplexy to an aneurism of the heart: and as for the extravasations produced in the corpus striatum, and the thalami nervorum opticorum by forcible injections through the carotid arteries, all they prove is, what we did not wish to be proved, that a healthy brain may be destroyed by mechanical violence. But when Mons. Brichteau employed his metallic syringe, can it be supposed that the matter he injected, was sent through the carotids by an embolus like the heart? I shall dwell no longer on the subject; but would ask, if aneurism of the heart be so common a cause of apoplexy, as Richerand suggests, how can Corvisart say, *ma Pratique ne m'a présenté aucun Fait de cette Nature, ce qui mérite d'être remarqué, vu les Observations assez nombreuses que j'ai été à portée de faire sur la maladie dont il s'agit?**

The Liver. Nobody can wonder, that a disease of the liver is sometimes the occasion of

* Sur les Maladies et les Lésions organiques du Cœur, &c. p. 178.

a Headach, who knows, on the one hand, that the Ancients attributed madness to it;* that bleeding at the nose is very often a consequence of it; that hydrocephalus is so frequently connected with a scrophulous state of it, and of the mesenteric glands; and on the other hand, that the passions disorder it oftener, perhaps, than any other of the viscera. But the intimate connection of the liver with the brain is shown by numerous histories: Bianchi relates one, in which the region of the liver being pressed, the pain there was exasperated, and a pain was also sympathetically excited at the same time in the brain, together with a confusion of ideas: Grenlich relates another case, in which the finger being applied to the region of the liver, a sudden acute pain was felt in it, and the patient was immediately attacked with a convulsive disease resembling epilepsy.†

To ascertain whether the liver be enlarged, the patient's abdominal muscles should be as much as possible relaxed, the recti muscles more especially, and the examination should be made during an expiration, the patient having previously had a dejection.

An abscess of the liver is then only to be felt, when it is in its external, inferior, and thin part, or at the end of the horizontal lobe.

* See Hippocrates' two Letters, the one to Damagetus, the other to Democritus.

† *Traité sur la Structure, des Fonctions, et des Maladies du Foie, &c. par G. Saunders, &c. traduit de l'Anglais de la troisième Edition et augmenté de plusieurs notes, par P. Thomas, D. M. M. p. 272.*

Great eaters have large livers, and small spleens, because an overloaded stomach compresses the spleen, which is attached to the stomach: and when the spleen is compressed, the blood which should pass into it, must go to the liver by the hepatic artery.

The liver, the lungs, and the spleen are peculiarly subject to a congestion of blood. The splenic artery is much larger than is necessary for the nourishment of the spleen, and it terminates in cells, out of which its vein of immense size arises, and goes to the vena portarum. But we do not know the use of the spleen. It has no excretory duct.

When the right side of the heart is distended with blood, the liver is so too; because the cava inferior cannot receive all the blood brought to it by the hepatic veins.

When the liver is gorged with blood, there is generally pain or tenderness in the epigastric region, redness of the face, which is often studded with inflamed pimples, a full, hard, and for the most part intermitting pulse, and sometimes as the patient says, an audible noise in the epigastrium, or a fluttering there, as if the blood of the vena portarum were regurgitating. A Head-ach or some other disorder of the head generally attends it, which is sometimes relieved, in young persons, by a bleeding at the nose, and in old persons, by a bleeding from the haemorrhoidal veins, or from the mucous membrane of the stomach or of the intestines, when there are dejections consisting of a mixture of blood and mucous, which is ropy, black, and fuliginous. The

Ancients called this mixture *Atrabilis*, and the disease *Μέλαινα*.

But there is often a congestion of bile in the liver; and it is generally connected with a pain in the head. There is then a pain felt at that most sensible part, the ductus communis chole-dochus, where it opens into the duodenum, and sometimes, but not always, jaundice. These symptoms with dyspepsia, which is never absent, may exist without scirrhus or steatoma, although of the latter disease the liver is oftener perhaps the seat than any other gland.

A pain in the head is not very commonly noticed in the histories of dysentery: but Sydenham notices it,* and so does Selle.† and two species of dysentery have been observed between the tropics; one idiopathic, from an overcharge of the vessels of the large intestines, and consequent inflammation of their coats; and another symptomatic, having its seat in the liver and small intestines. The symptomatic, maismal, or hepatic dysentery is distinguishable at its very commencement by a fixed pain at the pit of the stomach and constant Headach. These two symptoms accompanied with a disposition to frequent alvine dejection should, according to Dr. Chisholm, be considered, as indicating hepatic dysentery. He found the liver inflamed, enlarged, partially suppurated, or in some portions, sphacelated. The whole intestinal canal,

* Opera Universa. p. 190.

† Rudimenta Pyretologiae Methodicae, p. 152. Edit Berolini, 1789.

the small intestines especially more or less inflamed.*

Diseases of the liver are generally attended with emaciation. Perhaps one principal use of the liver is to assist the lungs in decarbonating the blood.

The Stomach. Every one knows, that a Headach is often dependent on the state of the stomach, the brain being intimately connected with it; that passions, as grief, fear, &c. may remove hunger, and suspend digestion for many days together; and that some are unable to exert their intellectual powers during the digestive process. I shall, however, consider the stomach as the organ of digestion, which I shall briefly describe, as I proceed, because it is impossible for any one, who is entirely ignorant of the different stages of digestion, to understand why a Headach should accompany the lodgement of alimentary matter, and of its residue in one part of the intestinal canal rather than in another; although it must have been known to many, that some substances, which pass through the stomach without occasioning any particular effect on it, disorder the bowels; that a purgative may be traced through the bowels by the kind of pain to which it gives rise; and that food of difficult digestion, although abounding in nutritive matter, may for days lie in the stomach, occasioning Headach and other disorders, while food of easy digestion is quickly acted on by the gastric liquor.

* A Manual of the Climate and Diseases of Tropical Countries, &c. by Colin Chisholm, M. D. &c.

By digestion is meant the conversion of food into chyme. This conversion is effected by means of a liquor, commonly called the gastric juice, which is secreted from the mucous membrane of the stomach.

There can be no doubt, that the conversion of food into chyme is the effect of the gastric juice, first, because, if food be enclosed in tubes, so as to be kept out of contact with the stomach, when they are conveyed into it, the food, undergoes no other change than it would have done out of the stomach; whereas, if the tubes containing the food be perforated, the food is digested: secondly, because, if the secretion of gastric juice be suspended, food is not digested in the stomach. It is therefore, not digested, after a division of the eighth pair of nerves on each side of the neck: for as already observed, the secreting power of the stomach is under the influence of those nerves which arise from that column of the spinal marrow, which is destined to respiration.

Numerous experiments were made by Spallanzani, Gosse, Brugnatelli, Carminati, and others to collect the gastric juice, that it might be analysed: but in all their experiments, it is thought, that not gastric juice in a pure state, and fit for analysis, was obtained, but gastric juice blended with other fluids, saliva, mucus, &c. Indeed, it is thought by some to be very uncertain whether what was procured by them, contained any gastric juice; because none can be separated by filtration from the chyme, although fresh food imbibes some of it by lying in contact

with digested food, or near it.* The gastric juice seems to act on the surface only of food ; for its centre may often be not at all affected by it : and the food that is last swallowed, is never found mixed with that, which had been taken long before, but is enclosed in it : so that digestion is the more rapid, the more the food is divided by mastication, and perhaps the more it is blended with saliva, this affording it oxygen. Nay, Boyle and Ray both observed that fish which swallow animals too large to be contained in their stomach, have that part only of the animals converted into chyme, which is contained in their stomach.

Is gastric juice secreted, when no food is in the stomach ? I think it is not ; but that fresh food, and that perhaps moistened with saliva, is the proper stimulus of the gastric glands.

The formation of chyle takes place exactly at that part of the duodenum, where the bile flows into it ; †for neither chyle, nor albumen, which is the principal part of chyle, is ever found in the stomach. How chyle is formed out of chyme is, I believe, as yet unknown : but, if a ligature be made on the ductus communis cholydochus, so as to prevent any bile from flowing into the duodenum, chyle is no longer to be found either

* Mons. Montegre is thought by some to have ascertained that what has been conceived to be the gastric juice is no more than a mixture of saliva and mucus, the chyme becoming acid during digestion, but not food in the stomach, when undigested.

† Journal of Science, Literature, and the Arts. No. xxviii. page 341.

in the intestines, or in the lacteals ; but, in the intestines, chyme differing from that in the stomach in this respect only, that it is of a thicker consistence in proportion as it is nearer the termination of the ileum, where it is solid, but not of the same appearance as the ordinary faeces ; and in the lacteals, a transparent fluid, consisting perhaps of lymph and the more fluid part of the chyme, which, being noxious to the body, whatever portion of it is conveyed into the blood is thrown out by urine, by perspiration, and probably by pulmonary exhalation.*

The bile is, therefore, indispensably necessary to the formation of chyle, although it neither becomes incorporated with the chyle, nor imparts a yellow colour, or a bitter taste to it.

When the residue of the alimentary matter, and the bile adhering to it, have passed into the large intestines, it instantly acquires the smell characteristic of the faeces ; but not sooner. This is not yet accounted for.

The reader is aware, that the natural colour of the gastro-enteric mucous membrane is white ; but that it is red in the stomach during chymification ; in the Duodenum and in the other in-

* On présume depuis long-temps que la vapeur pulmonaire n'est pas de l'Eau pure. L'Haleine febrile de quelques Personnes, l'Haleine contagieuse des Malades atteints de Fievres pestilentiellles, l'Haleine cadavereuse des agonizans, semblent appuyer cette opinion. Une experience du professeur Chaussier, citée par M. Majendie dans un mémoire lu á l'Institut, prouve que, dans l'Etat de Santé, la vapeur pulmonaire contient une petite proportion de matière animale. Séméiotique, on Traite des Signes des Maladies, par A. I. Landre-Beauvais. §. 157.

testines, during the passage of chyle, or of excrement through them.

The Headachs referred to the stomach, which I shall notice, are independent of any organic disease, as scirrhus, cancer, stricture, &c. Indeed I am not certain, that organic diseases of the stomach ever excite a Headach,

The first Headach is that from over-distension of the stomach, in a person in good health. Even a sort of apoplexy is sometimes incurred at a venison or a turtle feast. The stomach has been found extending into the left iliac region and filling almost the whole of the cavity of the abdomen: and from the pressure of the stomach on the aorta in the epigastric region, more blood must have been sent towards the head, and less into the extremities. In the Headach however and in the apoplexy from a distended stomach, the blood is decarbonated in the lungs to keep up the action of the heart; but the lungs cannot be duly expanded, because the descent of the diaphragm is prevented: hence there is an accumulation of blood on the right side of the heart.

I have already remarked, that irritation of the stomach may disorder respiration as if the lungs themselves were injured: and if the lungs be already disordered, their disorder may be aggravated by the state of the stomach.

If one exert himself by running, or even by walking after a meal, he feels his breathing oppressed, because his digestion is interrupted, and the capacity of his chest is diminished.

The second Headach is occasioned by hunger in a healthy person, as when he abstains from food beyond his usual hour of dining. This

Headach may almost instantly be removed by a morsel of meat, for this, as soon as swallowed, communicates a vigour to the whole system; and does it by its mere contact with the stomach; therefore before chyle can be formed of it, before chyme can be formed of it; nay, and before any additional quantity of blood can be determined to the stomach. A glass of wine does the same as a morsel of meat; so does tea, coffee, and opium, which diminish the accumulated excitability of the stomach,

The third Headach is that which is traced to a naturally weak stomach, when empty. It is noticed by Celsus, who says that a weak stomach is indicated by paleness, emaciation, pain at the praecordia, nausea, involuntary vomiting, and pain in the head, when the stomach is empty. He mentions also as indicating weakness of the stomach, a distension of it by flatus, with frequent discharges of it upwards and downwards, acidity of the mouth, and thirst at bedtime from some heat.* It is plain, that these symptoms denote morbid secretions in the stomach, for the acid and the air are both such.

To the removal of that state of the stomach which is productive of this Headach, I have found nothing more conducive than warm clothing, and keeping the bowels soluble. Warmth is best kept up by a covering of flannel, and activity of the bowels by dejections at regular hours every day. As however the bowels are generally costive, when there is acidity in the

* Lib. 1. Cap. 8.

mouth; sulphate of magnesia, together with magnesia in simple mint-water, taken every morning, I have found most beneficial. Mercurials I have never tried. Spontaneous vomiting is always followed by relief, but vomiting procured by emetics never: nor is the relief in the former case of long duration.* The best diet is the simplest and plainest, taken often, but in small quantities.

There is a fourth Headach, to which the chlorotic and the hypochondriac are peculiarly liable, which comes on with a pain of the stomach not immediately after taking food, but, as it should seem, as soon as digestion begins: for the pain is not felt till the food has been swallowed for some time, but is increased till the food, which is little altered, is brought up. If no food be taken, no pain is felt in the stomach, and no Headach: which leads some to abstain too long from eating, so that, when they are obliged to eat, the pain in the stomach and in the head seem to be the greater, the longer they may have fasted.

As pain may be communicated from branches of nerves to their trunk, as well as from the trunk to its branches; and as palsy from irritation may take place as well above it as below it, I suspect that this Headach, and perhaps all resembling it, arise from irritation of the stomach communicating an impression to the brain by the eighth pair of nerves.

Small doses of opium taken a little before

* *Vomitus inutilis est gracilibus, et imbecillum stomachum habentibus.* Celsus, Lib. 1. Cap. 3.

dinner render the pain of the stomach more tolerable, if they do not prevent it.

The bowels should be kept soluble by gentle laxatives, *hydrargyri submurias* may be given at bedtime, and a saline purgative the next morning twice a week. And, during the pain; carbonate of ammonia, *spiritus aetheris aromaticus*, *spiritus aetheris sulphurici compositus*, opium, camphor, castor, *assafoetida*, or mosch, may be occasionally given; but the disease of the stomach and of the constitution are best removed by the *mixtura ferri composita*. And a blister should be applied to the epigastric region or to the back.

The best diet is meat, with less vegetables than usual: but less of every thing should be taken at a time.

I have never found meat broths agree with a weak stomach; although I have sometimes found it difficult to convince a patient. that a fluid state of food is unfavourable to its digestion.* I think that broiled meat is better than either roasted or boiled.

As for a beverage at meals, for the patient

* John Hunter says, “a fluid is difficult of digestion. We “may observe, that nature has given us very few fluids as “articles of food: and to render that few fitter for the action “of the digestive powers, a coagulating principle is provided “to give them some degree of solidity.” *Obs. on certain parts of the An Oec.* page 175.

It is remarkable, that Cicero, in a Letter to Tiro, should have condemned his Physician for ordering him soup: *De Medico et tu bene existimari scribis, et ego sic audio: sed planè curationem ejus non probo; Jus enim dandum tibi non fuit, cùm κακοδόμαχος esses.* *Epist. Fam. Lib. xvi.6.*

should not distend his stomach with fluids, pure water is the best, and fermented liquors are the worst.*

The patient should sometimes, before dinner, walk abroad, and sometimes ride on horse-back, or, if it rain, in a carriage; and his exercise in the open air should not be omitted for a day, but should never be such as to bring on fatigue.†

Analogous to this Headach is that of persons of what is called a nervous habit, subject to flatulency, making large quantities of pale urine, and occasionally distressed by feelings of sinking and dying. When these persons are recovering from any constitutional, or from any local disease, have suffered any accident, as a compound fracture, or have undergone any surgical operation, they are for some time afterwards liable to be seized with a cold shivering, attended with a sense of dying, and followed by a cold sweat. The Headach is best subdued by camphor, valerian, opium, &c. the irritable state of the stomach and of the constitution by peruvian bark and preparations of iron; and the feelings of sinking and dying by brandy.‡

A fifth Headach is that from which the very young are always, and the very old would al-

* Mr. Accum's little Book, called "Death in the Pot," contains much valuable information: but there is no novelty in its very significant title. Schultze's *Mors in Olla*, Altdorf, 1732, is referred to by Gmelin, in his *Apparatus Medicaminum*, &c. vol. i. p. 336.

† *Exercitationis plerumque Finis esse debet sudor, aut certe Lassitudo, quae citra Fatigationem sit.* Celsus Lib. ii.

‡ Hunter on the Blood, Inflammation, &c. page 412.

ways be exempt, if they had not habitually loaded their stomach with improper food, and from time to time suspended its functions by large and repeated draughts of alkohol in some manner diluted, as in brandy, rum, wine, &c. all which act on the brain, as well as on the stomach, and bring on disorder of the chylopoietic organs. Patients labouring under this Headach have no appetite for ordinary food, and therefore seek for condiments; and often from taking ginger in a morning, they fly to tinctures from the apothecaries, and then to drams; not aware that every thing, which suspends, the action of the stomach, and the digestion of food, gives rise to flatulence, they flatter themselves, that the escape of it, which they cannot prevent, is the salutary effect of spices and spirits, and therefore take them oftener, and in larger quantity, till their tongue becomes foul, their urine turbid, their bowels costive, their faeces of an unnatural colour, consistence, and odour, their epigastrium tender on pressure, and their complexion totally changed. These dyspeptic symptoms, which are often kept up by local irritation of some part, are largely treated of by Mr. Abernethy, whose observations are in every one's hands.

Headach does not always attend these symptoms of indigestion; when it does, the cure of the Headach is the cure of the symptoms. Indeed, the sick Headach of Dr. Fothergill, as it is commonly called, seems to me to be no other than this, arising from the incipient state of the symptoms which I have mentioned.

In this Headach the pain generally extends

to one of the eye-balls ; heart-burn attends it, and what is thrown up is the food last swallowed, together with an acid so sharp that it seems to the patient as if it excoriated his gullet all the way from his cardia. A prodigious quantity of air is also brought up by vomitings and eructations, the smell of which, is so nidorous, so like that of putrid meat, as to be no less distressing to the patient than to those next him.

Morgagni knew a Knight, forty-six years old, given to errors of diet, exercise, attention of mind, &c. who threw up veal, as he had swallowed it, five days before.*

When once the habit of forming an acid,† and of setting loose vast quantities of air from the blood, by a sort of secretion in the stomach, is established ; when things which turn sour, turn sour almost as soon as they are swallowed, and meat is brought up undigested, or in a putre-

* De Sedibus et Causis Morborum, &c. Epist. xlii. §. 2.

† The acid of the stomach appears to Dr. Prout to be free, or at least unsaturated muriatic acid. Philosophical Transactions for 1824. Part I. But this, or any other acid in the primae viæ, has been found to occasion a deposition of lithic acid from the urine, probably before this leaves the pelvis of the kidney : and a lithic nucleus from the kidney is considered by Dr. Henry as by far the most common origin of all species of urinary calculi. An Essay on the chemical History and medical Treatment of calculous Disorders, by Alexander Marcet. M.D. p. 51. But of the value of Dr. Prout's discovery of muriatic acid in the digestive organs, a judgment may be formed from Dr. Bostock's Paper in the Edinburgh Medical and Surgical Journal. Jan. 1825, p. 65, where it is shewn that $\frac{1}{20000}$ of a grain of bichloride of mercury dissolved in 100 grains of water, may be detected by one drop of protomuriate of tin.

scent state, which ought to have been digested ; when the secretions of the stomach, the skin, the liver, and the intestines, are checked, or are disordered ; there can be no difficulty in accounting for the symptoms of this Headach.

I cannot agree, then, with Dr. Parry, that “ Headach, whether affecting the external, or “ internal part of the head, is owing to corresponding conditions of circulation in the external, or internal carotid artery ;” and that the Headach so well described by Dr. Fothergill, and usually called the Sick Headach, depends not upon the stomach. Dr. Parry asserts, that “ the state of the stomach is the Effect “ and not the Cause of the Malady of the “ Head, which it never precedes ; just as sickness and vomiting are the consequences, and “ not the cause, of the affection of the head, “ produced by a blow on the cranium :” and “ he goes on, “ Accordingly the Sick Headach may be cured, or relieved, by spontaneous bleeding from the nose, or other similar remedies applied to the head ; but is not “ alleviated by purging, and is always aggravated by the stimulants which relieve dyspepsia.”*

I must say, that if I have seen a fit of this Headach with an increased action of the carotid arteries, yet I have never known it to precede an immoderate indulgence in food, and an abuse of condiments ; never known it to be cured by a

* Elements of Pathology and Therapeutics, pages 302, 303.

spontaneous bleeding from the nose; never known it to follow a blow on the head; never could fancy any analogy between the sickness and faintness, and vomiting from indigestion, and that sickness and vomiting which immediately follow a blow on the cranium;* never known blood-letting either to cure, or to relieve, the Headach from indigestion; but have often known a fit of it to be relieved by magnesia, and by alkalies, carbonate of ammonia more especially, and to be cured by vomiting, whether spontaneous, or excited by emetics.

The state of the stomach is to be relieved, as Hippocrates says, by an emetic:† but supposing the stomach to be loaded, I would previously abstract blood, which is, I think, a cautious procedure: and I would then administer daily such an eccoprotic as should at once correct the superabundant acid of the stomach, and prevent its passing to the kidneys, to precipitate lithic acid in their pelves. I know nothing better for this purpose than magnesia, together with sulphat of magnesia in peppermint water.

The cure of this Headach, is not, however, the cure of the disorder in the digestive organs; for in proportion as this becomes established and increased, the Headach ceases, or is converted

* Hippocrates Aph. Sect. vi. §. 50.

Saunders's Treatise on the Structure. Economy, and Diseases of the Liver, &c. Edit. iii. p. 213, &c.

Also Mr. Abernethy on the loose and fallacious analogy between the insensibility in fainting, and that which occurs in concussion. Surg. and Phys. Essays. Part iii. p. 61.

† Aph. Sect. iv. §. 17.

into some disorder of the intellect. To cure the disorder of the digestive organs, the peristaltic action should be kept up. The patient should not be purged. His bowels should not be irritated. Till there is healthy bile secreted, and that in a sufficient quantity, the pilula hydrargyri, or submurate of mercury should be given in small quantities every night; and its action, if insufficient, should be assisted with gentle laxatives. But at the same time, cinchona, columba, rhubarb, &c. should be administered to keep up the strength. Mercury should not be so used as to affect the constitution.

What I said of the diet, and exercise of chlorotic and hypochondriac patients, is applicable to those who are dyspeptic; except that with the latter, although wine does not generally agree with the stomach, spirit diluted is a necessary beverage. I speak here of spirits, as if the patient had been accustomed to them: I do not recommend them to such as have not accustomed themselves to them.

A sixth Headach, depending upon the stomach, is that occasioned by worms irritating it.* The more common signs of worms in the stomach, or in the intestines, are a gnawing pain there; sometimes a voracious appetite; a tumid and hard abdomen; a fetid breath; emaciation, paleness of the face; faeces of an earthly smell, and containing, what some suppose to be, the

* Nullum tam peregrinum est Symptoma, quod Vermes excitare non possint. Klein. Interpres Clinicus.

remains of dead worms ; urine, soon after it is made, turning milky, the precipitate being oxalate of lime ; tumour with lividity around the eyes ; dilatation of the pupils ; the eye-lids during sleep half-open, grinding of the teeth in sleep, starting, and calling out in sleep, the mouth moved in a peculiar manner ; oedema of the upper lip and of the alae nasi ; itching of the tip of the nose, &c.

All these symptoms, I believe, often depend upon foulness in the bowels, when there are no worms : and so do Dr. Armstrong and Dr. Marshall Hall : but that vertigo and Headach should be excited by worms in the stomach and small intestines is not more wonderful, than that cough, pleurisy, haemoptoë, and consumption, should be excited, not only by them, but also by disorders of the digestive organs.* The Headach as well as the cough, the pleurisy, the haemoptoë, and the consumption, are all sympathetic affections, and the heart and arteries are not excited, because they are sympathetic affections. If, from being sympathetic affections they are changing, or changed, into the diseases they imitate, the action of the heart and arteries is excited. Hence the sympathetic Headach, cough, pleurisy, haemoptoë, and consumption, but not the real Headach, cough, pleurisy, haemoptoë, and consumption, are often cured by the expulsion of lumbrici. It is not true, that in haemoptoë any of the pulmonary vessels are ruptured : the bronchial membrane undergoes

* Medico-chirurg. Trans. vol. vii. p. 499. vol. ix. p. 389.

a functional derangement, by consequence of which blood is exhaled, instead of mucus, as Bichât and Laennec remark.

Alexander, who was born at Tralles, a famous city of Lydia, was the first, according to Dr. Friend, who observed that immoderate hunger (*Βουλιμος*) is sometimes caused by worms. “ He “ mentions the case of a woman who laboured “ under this ravenous appetite, and had a perpetual gnawing at her stomach, and pain in her “ head, after taking *Hiera*, she voided a worm “ above a dozen cubits long, and was entirely “ eased of her complaints.”* I suspect that lumbrici, which often exist in the bowels of children, without occasioning any symptoms, are sometimes a cause of Headach in adults; and not only of Headach, but also of the symptoms which I have mentioned. The taenia is generally accompanied with giddiness and Headach, and spasmodic affections: and so is the trichuris which is larger than the ascaris, and has a horn on its head, which it can project and retract: but whether ascarides, however numerous, ever produce any effect, except irritation where they are, I know not.

The *Duodenum*, called sometimes *Ventriculus succenturiatus*. The food digested in the stomach, and converted into chyme, is gradually protruded through the pylorus into the Duodenum; and chyle is immediately formed out of the chyme. The food which passes undigested,

* The History of Physic from the time of Galen, &c. by J. Friend, M. D. 4th Edit. vol. i. p. 112.

with the chyme, into the Duodenum, is probably carried undigested into the jejunum; and there is reason to believe, that a portion of chyme, from which chyle has not been separated, by consequence of deficient bile and pancreatic juice, or of some other cause, is carried on with the undigested food. It is not likely that digestion, when it is imperfectly performed in the stomach, is perfectly performed in the Duodenum: neither is it likely, that digestion and chyli-fication go on at once in the same place.

We are not much acquainted with either the nature, or the purpose, of the pancreatic juice. Chemists have not examined it: but from fatal bilious vomitings occurring to dogs, when their pancreas had been taken out, some have supposed, that it serves to dilute the bile, when more acrid than usual: and also that it is purgative, because dogs, when their pancreas had been removed, were afterwards exceedingly constive. The common belief is, that the pancreas is a salivary gland.

The Duodenum, the colon, and the rectum are intestines fixed in their places; and accumulations are very apt to take place in them. The Duodenum is fixed in its situation, by its attachment to the liver, to the capsule of the right kidney, to the colon, and to the back: and Dr. Yeats, in his observations on the Duodenum, a disease of which he has often known to be mistaken for a disease of the liver, after having enumerated the symptoms of a disease of that intestine, says “such patients, as have it, will trace “with most anatomical accuracy a considerable

“ uneasiness in the course of the Duodenum with
 “ their finger, from the stomach to the loins on
 “ the right side, and back again across the abdo-
 “ men to the umbilicus.”*

Dr. A. P. W. Philip speaking of the second stage of indigestion, which is characterised by epigastric tenderness and hardness of pulse, attributes the epigastric tenderness to inflammation, or a state approaching to it, of the pylorus, and the subsequent extension downwards on the right side of the tenderness with some degree of fulness to the communication of the affection of the pylorus to the thin edge of the liver.†

I have no doubt, that the Duodenum may excite a Headach by nervous communication but I think a Headach may depend upon undigested, or merely digested, and irritating matters taken up with extreme rapidity, not by the lacteals, along with the chyle, but by the veins, and carried into the blood of the vena portarum, and thence by the hepatic veins into the vena cava.

If neither the stomach, nor the liver, have been disordered, I have found a fluid-ounce of decoctum aloës compositum,‡ taken once or twice a day, or pills consisting of equal parts of rhubarb and Terebinthina Chia taken every night, so as to keep the bowels soluble, of more avail than any other remedy in this Headach: but I generally premise an emetic.

In obstinate cases, I have thought that a

* Medical Transactions of the College of Physicians, in London, Vol. vi. p. 325.

† A Treatise on Indigestion, &c. p. 105, &c.

‡ Sed Medicamenta Stomachum fere laedunt, ideoque omnibus Catharticis aloë miscenda est. Celsus, Lib. ii. cap. 12.

pill consisting of two or three grains of the *pillula hydrargyri*, and one grain of *ipecacuanha*, given every night for a fortnight, was of very great advantage in this Headach: but if the bowels were active enough without it, and the colour and the consistence of the *faeces* proper, I have omitted it.

I pass over the colon, so subject to enormous distensions, from flatus, and from solid matters coacervated in its cells, where they may remain, although softer matters may pass by them, or through them:* for I never knew a pain in the head from a distension of the colon only, although I have dyspepsia and emaciation.

I also pass over the *Jejunum* and the *Ileum*, which, like the stomach, are not fixed in their situation, as the duodenum, the colon, and the rectum are. For the *Jejunum* and the *Ileum* have adhered to each other, and been heaped up in a ball, which fell to either side, as the patient turned to it.† But I never heard of a pain in the head from an affection of the *Jejunum* or of the *Ileum*.

The *Rectum*. This intestine begins at the inferior and left lateral part of the body of the

* *Magna, eaque diuturna Intestinorum Evacuatio contingere potest per medium canalis; dum interea contractae cellulae cum compacta Foecum Mole firmiter unitae maneant. Evidenter id evincunt Ossa animalium, Nuclei Cerasorum et Prunorum, Nummi, aliaque indigestibilia Corpora, quae per Septimanas et Menses Intestina Sinu gerunt, et interim quotidie Foecum Copiose exonerant: imò interea dum eo Tempore Purgantibus et Enematibus sollicitata fuerint. Mira talia in Praxi vidi, videre Practici omnes. De Haen. Ratio Medendi. Pars. iii. cap. 2.*

† *Morgagni de Sedibus et Causis Morborum, &c. Epist. xxxix. §. 21, &c. Portal Anat. Medicale. Tome v. p. 210.*

fifth lumbar vertebra, descends obliquely from left to right, as low as the inferior third of the os sacrum, and then runs down, fixed and immovable, on the median line, to the os coccygis. The faeces are commonly collected in it, till by their bulk, their weight, or their acrimony they excite the circular and the longitudinal fibres of its muscular coat to expel them. It is astonishing how much the rectum may contain, more especially when it is weakened : and how much it may occupy of the pelvis, displacing its proper viscera.

Concerning the diseases of the rectum much might be here noticed : but I must not dwell on them.

Mr. White says, “ pain in the head, especially towards the occiput, is another very common symptom attendant on the stricture of the rectum. I was not aware of this until an eminent Physician, who laboured under strictures, consulted me, and being afflicted with severe Headachs himself, inquired if I had noticed that symptom in persons labouring under this disease. Recollecting two cases, in which the patients had occasionally complained of their heads, I informed him of the circumstance, at the same time observing, that I did not consider that symptom as at all depending upon the state of the intestine. I have, however, so frequently met with it since, that I have no doubt of this being the fact.”* I am happy in

* Observations on Strictures of the Rectum, &c. by W. White, &c. p. 38.

the opportunity of adducing the experience of this intelligent Surgeon ; and whether the Predisposition to Headach be more frequently roused by the presence of a stricture of the rectum, than by simple distention of this intestine from a coaction of faeces, I leave for him to determine : but although I have known, in females especially, enormous distentions of the colon without Headach, yet I have never met with a considerable distention of the rectum without it. And I suspect that a pain in the head may be occasioned by pressure externally on the rectum ; as it was in that case related by Morgagni, of a woman who had a tumour in the parietes of the Uterus, which so compressed the rectum that it was not without difficulty that she could expel its contents.* The remark of Morgagni, that the pain of this tumour was rendered excruciating, by uneasiness of mind, may bring to the remembrance of the reader of Bichât, his comparison of the rectum to the pharynx, in participating of the characters of organs of both lives.

As Headach is my subject, I have endeavoured to confine myself to it : but among the sympathetic affections arising from irritation of the mucous membrane of the digestive organs, there is not one, perhaps, more frequent than insanity : nor do I know any disorder, to the cure of which a removal of morbid secretions from the mucous membrane of the alimentary canal is more indispensably necessary.

I have mentioned a Headach from an affec-

* De Sedibus et Causis Morborum, &c. Epist. xxxix. §. 12.

tion of the similunar ganglion: but the reader may consult Professor Lobstein on the structure, use, and diseases of the great sympathetic nerve.

The *Kidneys*, &c. Passing over the spleen, the pancreas, the mesentery, and the omentum, because I have not learned that affections of them ever occasion a Headach, I now come to the Kidneys.

I shall say nothing here of their acidifying power: but it may not be amiss to remark, that in Headachs, as in all diseases of irritation and debility, the urine is generally pale-coloured and in large quantity.

Baglivi, according to Sauvages, observed a Hemicrania during a nephritic paroxysm, on the same side as the stone had produced the pain, with a small and depressed pulse of the same side; and supposed the Hemicrania to arise from a painful oscillation and contraction of the pericranium communicated to it by the Kidney. But how the pericranium, which is a fibrous membrane, should have sympathised with the mucous membrane lining the pelvis of the Kidney, I cannot conceive. It is not likely, that the external capsule of the Kidney, which is a fibrous membrane, should have been affected by a stone in its pelvis. Inflammation of the capsule of the Kidney is a rare morbid appearance.*

Without the influence of the nerves, no urine is secreted; as after a division of the spinal marrow, between the cranium and the first vertebra.† But Mr. Krimer found, that when the

* Baillie's Morbid Anatomy. p. 287.

† Journal Complementary. Sept. 1823.

renal nerves only are divided, the urine yields much less urea, uric acid, phosphates, or hydrochlorates, and no rhubarb, if rhubarb have been previously taken, but a much larger quantity of albumen.

Ischuria vesicalis is often attended with pain in the head, which I have always found to be of short duration, subsiding with the sense of fullness and distention in the pelvis. The urine was actually removed from the bladder; for after having, in my professional occupation, been often obliged to retain it, I have found, that when the sense of distention had ceased, I could make little or none.

That urine, secreted in the bladder, has, as urine, been translated to the axillae, the stomach, the brain, or any other part, I do not believe. Dr. Darwin refers to Dr. Senter's case, in the Transactions of the College of Physicians, at Philadelphia, Vol. I. p. 96, of a girl who laboured under an ischuria, and vomited her urine for many months, which could not be distinguished from that which at other times was drawn off by the catheter; and who, after having taken much opium, frequently brought up some gravel.* But I could as soon believe, that hearing had been performed by the eye, and vision by the nose, as that urine was ever secreted by the stomach, and that gravel was formed in it.

Ischuria renalis, in which no urine is secreted by the Kidneys, or in which urine is accumulated in the Kidneys by an enlarged prostate gland, is attended with Headach, and in about

* Zoonomia. vol. i. p. 164.

eight or nine days, with coma, which ends in apoplexy. It is a rare disease, because the Kidneys, and the ureters are double. Professor Whytt says, that “grown people who die of “ischuria, have often water collected in the ventricles of the brain, and become comatous before death;” and Ferrier, that “in fatal cases of ischuria, when the patient dies comatous, it is well known, that the ventricles of the brain are filled with a fluid, which has the sensible qualities of urine. This is a real conversion to apoplexy.”* I have attended several patients with ischuria, in whom there was no swelling of the hypo-gastric region, and in whom no urine was detected in the bladder by the catheter. They all died lethargic; but none of them had perspiration of an urinous odour; I could not be permitted to have the brain examined.

Portal supposes, that urine is formed in the renal arteries:† but this is very unlikely.

The *Ovaria*, *Uterus*, and *Mammae*. It should seem to follow from facts connected with the want of Ovaria, as that without them, there is no menstruation,‡ no sexual appetite, no venereal sensation; with the want of an Uterus, as that the sexual sensations remain, although it may have been removed; and with extra-uterine gestation, as that the same symptoms attend it

* Medical Histories and Reflections. Vol. ii. p. 78.

† Anatome Medicale. Tome v. p. 369.

‡ When both her Ovaria had passed through the tendinous openings of the oblique muscles, and had been extirpated, a woman recovered, but her breasts wasted, and she never menstruated afterwards. Perc. Pott's Works. vol. iii. p. 352.

as uterine gestation, that many things, which the Ancients attributed to the Uterus, are not owing to it, but to the Ovaria.

Democritus, in his letter to Hippocrates, pronounces the Uterus to be the cause of six hundred diseases: but I shall consider not it, but the Ovaria, as the cause of Headach; and this, as connected with menstruation, a function very little understood, but of the phaenomena of which it may not be unnecessary to say a few words.

At the age of puberty, in this climate, there commonly ooses from the mucous membrane of Uterus, for the space of three or four, or seven or eight days, a fluid, resembling blood, called the menstrea, the menses, or the catamenia, because, during health, it observes its periods very regularly from about the second Septinary till the seventh. As to the quantity of the fluid discharged, it differs in different women. De Haen concludes, “nonnullas foeminas menstruo
“Tempore tres Uncias Sanguinis demittere;
“alias quatuor, quinque; pauciores esse, se-
“milibram; raras admodum quae uncias decem
“evacuarent, nisi Uteri quopiam Defectu labora-
“rent.”* Smellie, Dobson, Young, and Haller, agree with De Haen.

Some women never menstruate: but, if they never menstruate, they never conceive. I shall not enter into a disquisition on the causes of sterility: but as some would have it believed, that a woman cannot conceive, let her ever so regularly menstruate, provided that the fimbriated

* Ratio Medendi, Pars. iv. cap. vi.

extremities of the fallopian tubes be prevented by adhesions from grasping the Ovaria, I would observe, that I do not see how conception is thus prevented. Perhaps the impregnated ovum, not being conveyed by one of the fallopian tubes into the Uterus, may drop into the cavity of the abdomen, and form a placenta there; so that an extra-uterine foetus is generally the consequence of the fallopian tube receding from the Ovarium, before the ovum has entered it.* I can easily conceive, that the fallopian tube may recede too soon, if the female be surprised, inter Usus Veneris.

Women are more irritable and more subject to hysterical affections at the menstrual periods; but some menstruate without any disorder. Such are, I believe, those who have not been brought up in indolence and luxury, and in whom the mind has not been debilitated by premature and extravagant excitement of the passions.† Most women, however, in this climate, when they have arrived at puberty, do not menstruate without pain in the loins, about the Kidneys, extending to the pudenda, weakness of the lower extremities, languor, pandiculation, and pain in the

* Certum est Ovulum non protinus a Coitu ex Ovario separari, neque intra perbreve Tempus per Tubas ad uterum deferri.—Concludere debetis, in Foemina etiam plus quam triduum requiri, donec ovulum ad Uterum pertingat. Marherr Praelect. in H. Boerhaave's Instit. Med. §. DCLXXIV.

† Uterus nullum sibi praeter Animi Pathemata Hostem novit. Van Helmont. Fear, grief, fright, and anger, &c. sometimes stop menstruation, and sometimes render it immoderate.

head, all of which cease as soon as menstruation has begun. These symptoms are generally more violent at the first period: Headach and epilepsy are then most frequent, and are sometimes brought on by attempts to accelerate menstruation.

The growth of the body is never more rapid than after the first menstruation.*

All this is, I believe, universally admitted as true: but it is also stated by some, that the menstrual flux is not always from the Uterus, but sometimes from the eyes, the ears, the nostrils, the gums, the lungs, the stomach, the anus, the urinary passages, the mammae, the umbilicus, the little finger, or some other part, when it is called vicarious menstruation.

Dr. Friend's explanation of the phenomena of menstruation on mechanical laws is both elegant and perspicuous;† but is not, perhaps, agreeable to the laws of Nature: nor is it necessary that I should examine it in this place. I shall,

* “As to that position of the plethorists, that women have
“come to the ἀκμή, or pitch of their growth before the phœ-
“nomenon takes place, I have been at pains to inquire into
“this, and find the fact every where contradicted, the growth
“never being more remarkable than after this time, at which
“the body becomes every way more healthful.” The Sys-
tem of the Womb, &c. by Tho. Simson, Chandos-Professor
of Medicine and Anatomy in the University of St. Andrew's,
p. 10.

Van Swieten agrees with Simson: see the learned Baron's
Comment. in Boerhaave Aphorismum, 1284.

† Emmenologia; in qua Fluxus Muliebris Menstrui Phœ-
nomena, Periodi, Vitia, cum medendi Methodo ad Rationes
mechanicas exiguntur.

however, offer some remarks on such of the phenomena of menstruation as are most common ; and shall first speak of their occurrence at puberty. This is attributed, by such as would assign a reason for every thing, to the firmness of the solids, which admit of no further expansion, and therefore to the escape of the blood by the Uterus, where it is most loosely confined. This reasoning presupposes, among other things, that women come to the pitch of their growth, before they begin to menstruate, which is an error. It presupposes besides, that the blood is sent with a force greater in proportion to the resistance given to it by the Uterus, than by other parts, in which the branches of the arteries are neither so numerous, nor so small. Of the number and size of the branches, of the hypogastric and spermatic arteries, in proportion to their trunks, it is impossible to form any estimate : but it is certain that the capillary arteries, which furnish the blood, from which the menstrual fluid is separated, are infinitely small as well as numerous ; and that the sum of their capacities being greater than that of their trunks, the motion of the blood in them must be vastly slower than in their trunks. Indeed, it is demonstrated by Dr. Keil, that the velocity of the blood in the thirtieth branch from any arterial trunk, is to the velocity of the blood in the trunk, as unite is to 615, the capacities being as the squares of the diameters, and the velocity reciprocally as the capacities. It should seem, therefore, that the very slow motion of the blood in the arteries of the Uterus is

not at all favourable to either a dilatation of their ramifications, or to a rupture of them.

Others have supposed, not a general, but a local plethora to be the cause of menstruation; but they have not told how it takes place, nor, indeed, given any proofs that it does take place. They have assigned an unnatural cause for a natural effect, which is not very philosophical.

The pain in the back and loins has been very generally attributed to the distention of the hypogastric and spermatic arteries; but who ever saw them distended? The Uterus is, no doubt, more vascular at the time of menstruation, and at the time of uterine gestation, because menstruation and growth are operations beyond the simple support of the part; but who ever saw the hypogastric and spermatic arteries so distended as to give rise to pain in the back and loins? They become larger and longer: but they do not become distended.*

If these arteries in women contain more blood after death, than other arteries do, it does not follow that such an accumulation as Dr. Friend supposes, is necessary for menstruation: Dr. Monro says, that the spermatic arteries in males

* *Alteram verò Opinionem, menstruae Purgationis motum à solo exuberante Sanguine, qui in uteri vasa perlabitur, eaque Copia et Calore distendit ac aperit, derivantem, non Ratio tantum, sed et frequens Cadaverum Dissectio prorsus refellendam esse demonstrat: siquidem nulla Probabilitate nititur, quod Sanguis (qui perenni Circulationis Lege continuò per omnes Corporis Partes movetur) tanto Temporis Spatio in Uteri Vasis stagnaret: quibus addendum, Uteri Vasa haudquaquam tantam Sanguinis Copiam continere posse, quanta una Periodo evacuari solet: praeterea in Muliebribus*

after death, contain more blood than any other arteries in the body.* If the menstrual fluid has been seen issuing from a prolapsed Uterus, or if it has been pressed out of it, is this a proof, that there is a collection of blood in the uterine arteries before menstruation takes place? Supposing that the menstrual fluid is not blood, but a fluid separated from it, should there then be a collection of blood in the uterine arteries before its separation from that blood?† I think not.

The languor, the debility of the lower extremities, &c. are attributed to the plethora, to a redundance of blood.‡ But is it not granted, that a plethora may exist, when there is no re-

instante Menstruorum Fluxu subitanea Morte extinctis ac dissectis, Uteri Vasa, mirum in modum distenta inveniri deberent: at illud nunquam invenire potuimus, nec ab aliis inventum legimus: et licet aliquantulum magis quandoque turgent, illud profecto parum facere posset ad Quantitatem singulis Mensibus expurgari solitam. De Graaf de Mulierum Organis Generationi enservientibus. Cap. ix. De Fluxu Menstruo.

* Rarus sane et insignis hujus Arteriae Decursus in Quadrupedibus praesertim, fluidorum Impetum eo usque minuit, ut in ea post Mortem, Sanguinis Copiam majorem quam in aliis arteriis invenerim. Dissertat. Medica inauguralis de Testibus et de Semine in Variis animalibus. p. 11.

† A la Suite des longues et abondantes Secretions ou Exhalations je n' ai point observé que les Arteres fussent plus dilatées dans les Glandes ou autour les Organes exhalans. Bichât, Anat. Gen. Tome ii. p. 373.

‡ Languor verò invadit, quia in Plethora et nimio Pondere laborat Corpns, et tenera Cerebri Vascula ita turgescunt, ut Compressu suo omnes pene in nervos aditus praecludant; hinc in Membra minor derivatur Spirituum Copia. Friend, Emmenologia. cap. viii.

dundance of blood, from the diminished power of the heart and arteries ; as in consumptive patients ?

As to the origin, course, and distribution of the nerves, which are in the substance of the Uterus, I shall refer to Professor Tiedemann.*

Now the menstrual fluid is not blood, the purest and most fragrant, as Dr. Friend asserts :† and if it were blood, the heart could not send it into one part more than into any other. For, as Professor Simson remarks, “ the mass
“ of blood which is distributed through the diffe-
“ rent parts of the body by the impartial heart,
“ must convince us that the variety, which we
“ find in the form, velocity, and exit of the li-
“ quors, after their protrusion from the heart,
“ is owing to the circumstances of the parts,
“ through which they afterwards pass.‡ And that the menstrual fluid is not blood, is plain from these facts, that it does not coagulate and separate, as blood does, into crassamentum and serum ; that it does not become putrid in a summer heat, as blood does ; and that it contains neither fibrine nor globules, as blood does. Nay, it is plain, that it is a fluid secreted from the blood : and that, like all other fluids, secreted or excreted, its suppression should be the

* *Tabulae Nervorum Uteri.*

† *Neque enim iu sanis Sanguis ille, qui ejicitur impurus est, aut vitiosus, sed optimus et fragrantissimus. Friend—Sanguis ille qui ejicitur, ex Capillaribus Arteriis erumpit : ideoque naturam arterioi h. e. purissimi Sanguinis retinet. Id. Emmenologia.*

‡ *System of the Womb. chap. i.*

cause of disorder, is a conclusion, which is, I think, fairly countenanced by analogy. - It seems to me, however, that the composition of the menstrual fluid is not fully ascertained. It certainly consists of more than the colouring matter of the blood floating in serum.*

The menstrual fluid can no more be formed without an uterus, or a vagina, than bile can without a liver: and, therefore, if the discharge of the menstrual fluid being stopped, a hæmorrhage take place from any other part, it cannot be vicarious of the menstrual flux. Every Physician knows, that the most scanty menstruation affords more benefit, in many cases, than the loss of twenty ounces of blood; and that the loss of a greater quantity of blood, than there ever is of menstrual fluid, never prevents menstruation.

When a girl does not menstruate at the usual time, she is said to have a retention of the menses: but how that can be retained, which never existed, I am at a loss to tell. The menstrua do not exist in the blood, quia menstrua sint, more than bile does. And till a girl has menstruated, who can tell, that she will ever do it? I know three women, who are now advanced

* Bichât, speaking of the singular connection which exists, in mucous hæmorrhages, between the mucous membrane of the Uterus and that of the Bronchiae, says *Si le Sang cesse accidentellement de couler de l'une pendant la Menstruation, l'autre l'exhale fréquemment et supplée pour ainsi dire à ses Fonctions.* Anat. Gen. Tome iv. p. 419. But menstruation is not a hæmorrhage: the menstrual fluid is not blood: nor do I believe that a hæmorrhage from the mucous membrane of the lungs, or of any other part is ever vicarious of the discharge of the menstrual fluid.

in life, who never menstruated. Many do not menstruate at the usual time, and are not the worse for it, unless it have led their officious mothers to torment them with emmenagogues. It is a rule laid down by very great authority, that, if a girl who does not menstruate be well in all respects, no medicines should be given her * But I have known those, who were endeavouring to bring on menstruation, when there was no sign of puberty, not even a swelling of the eye-lids, and certainly no dingy redness round the eyes.

When, however, the menstrua do not appear at the usual time, and yet there are all the signs of their being about to flow; when they have begun to flow, but suddenly cease to flow; when they have flowed at one period, but do not flow at the next period, then vertigo, tinnitus aurium, flushed face, headach, furred tongue, loss of appetite, pain in the epigastrium, nausea, colic, constipation, quick pulse, and great lassitude, are sometimes the consequences. But sometimes paralysis of the inferior and superior extremities, sometimes death from apoplexy follows. Blood-letting, the warm bath from 97° to 100°, purging with *magnesiae sulphas* and *vinum antimonii tartarisiati* together in *aqua menthae viridis*, and the antiphlogistic regimen, should be had recourse to in all these cases.

* *Hae, si ceteroquin recte valeant, neque ulla Pectoris oppressio, aut Tensio molesta in Lumbris, Epigastrio et ad Os sacrum percipiatur, haud vexandae sunt Medicamentis, sed totum id negotium naturae permittendum. Quarin, Obs. Medicae Pract. p. 52.*

Perhaps the blood is best taken from the pudenta by ten or fifteen leeches : but it should be taken from the head also, if there be signs of vascular pressure on the brain.

Chlorosis, when fully formed, is generally attended with suppression of the menstrua, as well as with a disorder of the stomach and Headach ; but I have nothing to add concerning this Headach, to what I have already said, of that produced by a diseased state of the stomach. When there is a strong Predisposition to consumption, this disease will certainly occur, unless the weak, and irritable state of the system be quickly removed. All means of restoring the vigour of the system, and of favouring menstruation should, therefore, be had recourse to. But the means of favouring menstruation, in such a case, are also the means of imparting vigour to the system : exercise in the open air, nourishing diet, and cold bath, chalybeate waters, preparations of iron. I have, therefore, been long in the habit of adopting, in such cases, a practice like that which is recommended in consumptions, by Dr. Stewart, and is detailed by him, in some letters, which were lent me by my lamented friend, Dr. Saunders,* and in others, which were sent me by the late Dean of Rochester, Dr. Busby, whose daughter, supposed by some to be soon to die of consumption, I was then attending.

* These Letters were also lent to Dr. Sutton, and are published in his Tracts on Delirium Tremens, &c. p. 180.

It would be absurd to bring about menstruation, and to neglect the general system : emmenagogues are, therefore, improper, unless marriage be an emmenagogue. Even cough, hectic, and violent Haemoptoë have been removed in some, who had never menstruated, by restoring the strength of the system.*

All Authors seem to agree, that the suppression of menstruation, by consequence of fever, or of any other disease, is not to be removed till the fever, or the other disease is cured ; and that all attempts to restore menstruation sooner do but aggravate the disease, upon which the amenorrhoea depends.†

Pregnancy. The state of Pregnancy is often attended with pain in the head : but if this pain occur before the end of the third month, while the uterus is within the pelvis, and the ovum is not larger than a goose's egg, there is no more reason for attributing it to the foetus in utero, than the sickness and other symptoms of early Pregnancy, which occasionally happen, even if the foetus be in one of the ovaria, or of the fallopian tubes, or in the abdomen.

Pain in the head, with sickness, heartburn, &c. is often felt about the beginning of the fourth month of Pregnancy, when the uterus suddenly ascends out of the pelvis into the abdomen. This is not the first movement of the foetus ; but when a woman has felt it, she is said to have quickened.

* A Treatise on the Origin, Progress, Prevention, and Cure of Consumption, by John Reid, M. D. &c. p. 252.

† Cullen's First Lines of the Practice of Physic.

Gulielmi Heberden Commentarii, &c. cap. 62 and cap. 72.

All women do not feel such symptoms in their Pregnancies; but when they do, they are best quieted by venesection.

Pain in the head, with giddiness and sleepiness, especially after having been long in a horizontal posture, as in sleep, sometimes comes on after the beginning of the sixth month of Pregnancy, rarely earlier; and is attributed to the pressure of the gravid uterus upon the lower part of the aorta descendens; so that less blood being sent below the point of pressure, more is detained above it.* And as more blood is detained above this point for some time after child-birth, if there be then the Predisposition to Headach, affections of the stomach, produced by eating any of the fungi, or shell-fish of the bivalve class, muscles, oysters, &c. may be followed by Headach, apoplexy, convulsions, and death.† Our reliance should be on venesection, purging, &c

A pain in the middle of the forehead, of a pregnant woman, as if a nail were driven in there, is almost a certain prelude to convulsions: and Dr. Dewes, who makes this observation, recommends immediate recourse to the lancet. In

* L' Artere Aorte parvenue au-dessous du Corps ligamentocartilagineux, qui unit la troisieme à la quatrième Vertèbre lombaire se divise en deux grosses Branches: il est rare qu' cette Division de l' Aorte soit plus elevee, et encore plus qu'elle soit plus basse. Si elle etoit placée sur la cinquieme Vertebre, comme Lieutaud l' a dit, la matrice, pendant la Grossesse, ainsi que Camper l' a remarqué, ne pourroit manquer de la comprimer, d'ou resulteroient des Accidens graves. Portal, Anat. Medic. Tome iii. p. 297.

† Medical Trans. of the College of Physicians, in London, vol. v. p. 109.

all cases of convulsions during Pregnancy, he has observed the attack to be preceded by Head-ach, ringing in the ears, vertigo, and often a temporary loss of vision.*

Cessation of Menstruation. Women cease to menstruate about their fiftieth year, sometimes at about their forty-eighth; and this is generally and very emphatically called by them, the *Turn of Life*, for it is that turn of a female's life, in which she loses the grand characteristic of her sex. Various diseases are then apt to take place,† of which cancer is one. Perhaps, the shrinking of the Ovaria and their change of structure, may concur to produce the pain in the head, after the final Cessation of Menstruation ‡ Blood-letting and purging are then to be employed.

Ovaria, or Female Testes. It is remarked, by Morgagni, that diseases of the Ovaria occur so much more frequently to women, than to the females of other animals, that it is natural to suppose those diseases depend, in some measure, upon the passions.§ When one of the Ovaria is

* American Medical Recorder. No. iii.

† Post Menstruorum Cessationem, Plethora oborta, accedere solent Cephalalgia, Rubor et Inflatio Faciei, Vertigo, Dentium Dolor, artuum Titillationes, ardores fugaces, Ephe- lides seu maculae Faciei, Pustulae in Facie et Collo, imo nasus quasi flava vernice obductus; non aliam ob Rationem nisi quod Sanguis versus Caput congeritur. J. G. Roedereri Elem. Artis Obstetriciae, &c. §. 144.

‡ In provocioribus ac decrepitis minores, duriores, et magis exhausti sensim magis et magis emarcescunt, numquam tamen evanescent: minimos namque Vetularum Testiculos adhuc Scrupulum ponderasse notavimus. De Graaf, Loco citato.

§ De Sedibus et Causis Morborum, &c. Epist. xxxix. §. 38.

diseased, a pain is said to be frequently felt very early in the mamma of the same side, and in some cases there is a secretion of milk.* I have met with two cases of dropsy of an Ovarium, in both of which there was a fixed pain in the head of the same side, and in one of which there was also a pain in the mamma, and milk secreted by it. One of these women was tapped at Guy's Hospital, and a considerable quantity of water was discharged; but peritoneal inflammation ensuing, she died; and Sir Astley Cooper favoured me with the following account of the appearances on dissection :

“ The left Ovarium was the seat of the
 “ Dropsy, and it occupied all the abdomen on
 “ the left side, thrusting the viscera to the right.

“ The right Ovarium and Fallopian Tube
 “ formed a considerable Tumour, apparently of
 “ the cancerous kind, sending forth a number of
 “ fungous shoots from its surface.

“ The abdomen contained about four quarts
 “ of water, independently of what was found in
 “ the Ovarian Cyst.

“ The Peritoneum was much inflamed, both
 “ upon the surface of the intestines, and where
 “ it lines the abdominal muscles.

“ The Cyst adhered partially to the parietes
 “ of the abdomen.

“ I shall hope to have an opportunity of
 “ showing you the parts at some future time, as
 “ they are preserved in the Museum of Guy's
 “ Hospital.”

* Haller, Disp. Med. Tom. iv. p. 401.

Male Testes. Headach, epilepsy, convulsions, tetanus, apoplexy, hemiplegia, &c. have been traced to a swelling of one of the Testes, to an injury of it, as compression, &c.

In inflammation of a Testis, the pain is like that in inflammation of the stomach and small intestines, heavy oppressive sickly: and the pulse at the wrist is alike in both, small, low, or contracted, and quick, but becoming fuller and stronger after venesection. John Hunter says, that “ the Testis receiving its nerves from the “ plexuses of the intercostal, accounts for the “ stomach and intestines sympathising so readily with it, and its particular sensation, with “ the effects arising in the constitution upon its “ being injured.”*

Such are the principal occasions of Headach, which now come into my mind: and although it would be easy, by a little exercise of recollection, to increase the number, I think it unnecessary, because all Headachs occur by paroxysms, and no patient is so indifferent concerning his Headach, when it interrupts his pursuits, as not to be diligent in his inquiry as to the occasions of its return, that he may avoid them. *Utile est scire unumquemque, quid, et quando, maxime caveat.*†

* Observations on certain Parts of the Animal Œconomy. p. 3. 4.

† Celsus.

CHAPTER V.

CURE OF HEADACHS.

As every case which may occur of any Disease is a new case, so the cure of it presupposes a knowledge of the circumstances in which it differs from other cases that have occurred, and by consequence requires some sort of theoretical deliberation. This theoretical deliberation preceding prescription must differ in different Physicians, not only as they have seen a greater number of cases, but also in proportion as they are qualified to appropriate to themselves more of the general truths of past ages, and to seize more of those new analogies, which are from day to day offered by discoveries in the physical Sciences. Indeed, common sense dictates no less forcibly that vague experiment is dangerous,* than that he, who shall have investigated

* Ο' βίος βραχὺς, ἡ δὲ τεχνη μακρὴ, ὁ δὲ καιρὸς ὀξύς, ἡ δὲ πειρα σφαλερὴ, κ. τ. λ. Hippocrates, Aph.

Vaga Experientia et se tantum sequens mera Palpatio est, et Homines potius stupefacit, quam informat. Bacon, Novum Org. Lib. i. Aph. C.

the proximate Cause of a Disease, and attended to the greater number of circumstances, distinguishing different cases of it, is most likely to have Reason for his Guide, and to cure safely quickly, and pleasantly.*

Assuming, therefore, that a Headach is what I have defined it (see p. 31); and also that there are two kinds of Headach, Cephalalgia and Cephalaea, in which either the whole head, or only one-half of it is in pain; the first inquiry is whether the disease be sympathetic, or, as we wish we could say, *ideopathic* (see p. 96.) It is not always easy, when the pain is referred to the whole head, to distinguish a sympathetic from an idiopathic Headach, as it is called; but it is in general easy enough, when the pain is referred to one side only of the head: for we should then search after the part with which the brain sympathises on the same side of the body as the Hemicrania is. And in addition to what I stated, in speaking of the more common cases of Hemicrania (see p. 46,) I might, at the same time, have reminded the reader, of the dura mater becoming inflamed, and of the cheek becoming flushed on the same side as the lungs are inflamed; of the tongue becoming white and rough on one side only, if the lung of the same side only be inflamed, or on both sides, if both lungs be inflamed;† of digestion being accompa-

* Is erit recte curaturus, quem prima Origo Causae non fefellerit. Celsus, Praef. ad Lib. i.

Asclepiades officium esse Medici dicit, ut tuto, ut celeriter, ut jucunde curet. Celsus, Lib. iii. cap. iv.

† Morgagni de Sedibus et Causis Morbor. Ep. vii. §. 12.

nied with languor of the left side, because the stomach is situated there ;* and of disorders of vision, which may always be thought to originate in a disease of the retina, by those who are not aware that this nerve sometimes sympathises with the liver, the stomach, the intestines, &c. but minds accustomed to reflection and to association, and capable of estimating the degree of evidence which numerous analogies afford, require no recommendation from me of analogical evidence. I promise not a complete Treatise on Headachs, but only an Essay.

When a pain in the head is sympathetic, it is cured by removing the disease of the part, with which the head sympathises. A periodical amaurosis is often cured by removing a disease of the stomach. In all such cases, the Headach is preceded by flatulence, distention of the stomach, and oily, or nidorous eructations, followed by changes in the colour, odour, and consistence of the alvine discharge, whiteness of the tongue, clamminess of the mouth, languor, despondency, and alarm : and when once the Headach supervenes, all the gastric symptoms are increased ; and other symptoms arise from contiguity of position, association of function, and connexion of nerves. It is the property, however, of a sympathetic Headach to occasion either a partial, or a general distention of blood-vessels in the head : but in a partial distention of the blood-vessels of the brain, when some of the blood-vessels contain less blood than usual, in proportion as others contain more, when there is an

* Bichât sur la Vie, &c. p. 27.

undue circulation and distribution of the blood, as in the slighter cases of compression of the brain, the sensibility is increased; whereas in a general distention of the blood-vessels of the brain, the sensibility is nearly destroyed, so that the pupils are dilated, the limbs are relaxed, &c. therefore, if together with the distention of some only of the vessels of the head, the Headach increase, and the sensibility of the body be also increased, the Headach is no longer to be considered as sympathetic: it is become an idiopathic disease, and new symptoms may be traced to it.

Now, no person can have a disease, unless he be predisposed to it: so that whether the disease be Cephalalgia, or Cephalaea, there must be a distinct predisposition to it. As I have already expatiated on this subject, I shall only say here, that the Predisposition to Cephalalgia seems to me to consist in a peculiarity of structure in some part within the cranium, which peculiarity is either original and congenital, or acquired by consequence of diseases, or of injuries, from which the patients are said to have recovered. Having enumerated several of these peculiarities, I shall now direct the reader's attention to that which is common to them all; such a distribution of the blood as differs from that in the generality. Perhaps, the blood-vessels take a different course to their destination; or the diameter of some of them is larger, and of others smaller. Be this as it may, let the circulation be ever so peculiar in any part within the cranium of an individual who is liable to Cephalalgia, it is compatible with the exercise of all his faculties. All must acknowledge, however, that a circulation

which is peculiar in any part of an individual, is more easily disturbed than a circulation which is common to that part in the species.

I suppose my reader to know how solutions of continuity, as we say, are repaired in different structures ; how new and adventitious parts differ from original parts, and from themselves, when growing, and when their growth is finished, &c.

Whenever then that circulation within the head, which is the Cause of the Predisposition to Cephalalgia, is somewhat permanently disordered, I suppose Cephalalgia arises.

Cephalalgia cannot arise from the mere Predisposition to it. There must be an occasion acceding : and this occasion must be an unusual one, for Cephalalgia arises neither on common occasions ; nor, indeed, always on unusual ones ; because the arteries have a power of accommodating themselves to the column of blood they contain.

It is not improbable, I think, that the occasions of Cephalalgia are all such as act by producing a debility and dilatation of some of those blood-vessels within the cranium, in which the Predisposition to Cephalalgia consists. It is not difficult to suppose, that blood-vessels, having a peculiar course to their destination, if suddenly debilitated, are by consequence enlarged more than the extent of their elastic power allows.

John Hunter supposes a dilatation of the blood-vessels to exist in inflammation : but the dilatation of the blood-vessels in inflammation is preceded by a dilatation of the capillaries ;

whereas the dilatation of the blood-vessels in Headach is without a previous distention of the capillaries, so that in the latter, there is no fever, no greater frequency of the pulse.

It is an unfounded opinion of some, that all pains depend upon excess of stimuli : for pains depend as often upon defect of stimuli as upon excess. Pain attends defect of stimuli in the Headach preceding fevers, in the Headach after considerable loss of blood, as in that of women after uterine haemorrhage, when the pupil is dilated and immoveable, when there is occasionally vertigo, &c. in the Headach of feeble persons, and in the Headach of all, when the head and the extremities are cold, when the pulse is slow and weak, &c. Nor is it ascertained, that an accelerated action of the heart and arteries ever occasions a Headach ; for although a Headach often follows it, yet, as far as I know, a Headach never accompanies it. I appeal to every man, whether he ever felt a Headach, when in violent exercise, or by consequence of it, till the acceleration of his pulse had ceased, and till a sense of exhaustion and fatigue had taken place. On the other hand, when the odour of hydrocyanic acid occasions a Headach, no acceleration of the pulse intervenes between the impression on the first pair of nerves and the Headach : no excited action attends this Headach, and it is removed by stimuli of the strongest kind, as subcarbonate of ammonia, brandy, ether, &c.

A partial dilatation of the blood-vessels, and Cephalalgia, may, therefore, be induced by occasions of diminished action, as well as by occa-

sions of increased action, directly by the former, but indirectly by the latter ; and the action in either case, is through the nerves of the arteries. Perhaps, the blood itself, as well as the arteries containing it, is under nervous influence.*

This is the outline of a hypothesis of Cephalalgia: and it may, I think, *mutatis mutandis*, explain all the phenomena of Cephalaea, considering by what a number of facts generalised by induction, it is proved, that in the seat of the Predisposition to this Headach there is a tendency to disorganization, or an adventitious part of a malignant tendency deriving its nourishment, parasitically as it were, from some original part next it, but living and increasing by its own peculiar powers.

As to the Cure of Headach, I can easily conceive not only how a Cephalalgia resembling a Cephalaea, or this resembling that, the same means which relieve the one, may increase the other ; but also how similar cases of Cephalalgia, or of Cephalaea, may be diminished, or exasperated, by the same means : for he who directs all his attention to one prominent symptom, and neglects the cir-

* John Hunter speaks of contiguous sympathy between the blood and the blood-vessels : and Dr. Baillie, discoursing on the natural Cure of Aneurism, says, “ the State of the Blood, “ or rather of the coagulable lymph may arise from some “ connexion or sympathy it may have with the diseased structure of the artery.” Trans. of a Society for the Improvement of Medical and Chirurgical Knowledge. Vol. i. p. 124. See also Beclard’s *Elemens d’ Anatomie Generale*. chap. x. §. 755. where this Professor refers to G. A. Treviranus *Biologia*, a work which I have not yet seen.

cumstances peculiar to a case, is more likely to exasperate than to relieve it. Even in different cases of Cephalalgia, I am persuaded, that a degree and kind of stimulus may cure one, which increase another; and that I shall not err much, if I lay it down as a fact, that in every case of Cephalalgia, debilitated and distended blood-vessels are to be made to contract by stimulants proportioned to their debility; and that in every case of Cephalaea, a specific action is to be diminished, and the means of restoring the natural action are to be employed.

OF BLOOD-LETTING.

The most common remedy in all pains of the head is Blood-letting; as if the head contained a quantity of blood greater than usual, and that quantity in addition to the other contents of the cranium. And certain it is, that the quantity of blood in the body, or in any organ of it, should be in a due proportion to its solid parts. But that the head ever contains an unusual quantity of blood, while the brain, its membranes, and their blood-vessels are in a healthy state, is very doubtful: and considering how incompressible the brain is, if either water or other matter be effused or secreted from the blood-vessels, there must, as Monro says, be a quantity of blood, equal in bulk to the effused matter, pressed out of the cranium.*

A pain in the head is often attended with a plethoric state of the body: but it does not follow that there is then an accumulation of blood in the

* Three Treatises. On the Brain, the Eye, and the Ear.

head. Yet, if the body be plethoric, as it may occasion pressure on the brain, Blood-letting is necessary. But a person may be thought plethoric, when he is really not so, and when his constitution does not easily bear a loss of blood. Therefore, Blood-letting, which has a tendency to increase the disposition to plethora, and to render its own repetition necessary, should not be had recourse to without the utmost caution : for a person may have a deep-seated pain in the head with a suffused countenance, dilated and immovable pupils, a noise in his ears, and occasional giddiness, and yet no plethora of either his body or his head ; and experience shows, that Blood-letting, whether local or general, increases his Headach. Indeed, it should seem, that it is as irrational to think of lessening the quantity of blood in the head, or in the body, in this Headach, as in that at the beginning of fevers, before any re-action has taken place. I hold such a Headach to be nervous or sympathetic, and to give rise to an irregular circulation of blood in the brain, and to end sometimes in Cephalalgea or Cephalaea. But as long as it is sympathetic, I have ever known it increased by taking blood from the head, or from the arm. Thus, I have ever known, that the Headach from a retention, or from a suppression of the menses, as long as it was sympathetic, was increased by leeches applied to the temples, or by drawing blood from the arm, although it was relieved by leeches applied to the loins, to the lower part of the abdomen, or to the pudenda. The same holds of the Headach from a suppression of the

haemorrhoids, which, even when being converted into another disease, I have seen quickly cured by leeches applied around the anus.

John Hunter, according to his new theory of the action of the vessels in inflammation, supposes that “ besides the loss of any quantity of “ blood being universally felt, an universal alarm “ is excited, and a greater contraction of the ves- “ sels ensues than simply in proportion to this “ quantity, in consequence, as it would appear, “ of a sympathetic affection with the part bleed- “ ing.”* But the enlargement of the blood-vessels in inflammation, John Hunter considers, as active, and compares to the increase of size in the Uterus during Pregnancy, and in the Os Tincae during parturition; whereas I conceive that, in Headach, there is a dilatation of the blood-vessels beyond the extent of their elastic power, and of their vital, which does not depend on an “ Action of Dilatation.” For very little blood drawn by leeches, from the scalp, often cures a Headach, and much blood taken from the head, or from the arm, often aggravates a Headach. In this latter case, I believe, the blood is always slow in coagulating, and when coagulated, loose in its texture. In short, where there is too much blood in circulation, the quantity of it should, no doubt, be diminished; but when there is merely an irregular distribution of the blood in some part of the head, which exists, perhaps, in every Headach, there I am convinced the Headach is aggravated and prolonged by that

* A Treatise on the Blood, Inflammation, &c. p. 336, 338.

weakness which all the modes of depletion produce, but none more than Blood-letting. As Blood-letting is, however, one of the most powerful modes of exciting a contraction of the vessels, a medical man should consider, in the cure of every Headach, whether it be sympathetic, or idiopathic, how much blood should be taken away, and from what part it should be taken.

ARTERIOTOMY.

To lessen the column of blood going to the brain by the internal carotid artery, some recommend the temporal artery be opened, for the cure of Headach ; others for the cure of Headach and of other disorders, the arteries behind the ears ; others recommend other arteries to be opened for the cure of Headach, as the coronary of the lips, the inferior thyroid, the collateral of the fingers and of the toes, and the radial :* but I have never known any advantage from Arteriotomy : and, as I have witnessed from it a sudden and alarming increase of that weakness, which is so evident in all Headachs, and by consequence a sudden increase of the susceptibility of impression from slight causes, after great losses of blood, I never recommend it.

PHLEBOTOMY.

If a pain in the Head occur in a plethoric person, he should lose blood from his arm.

* Martin, de la Phlebotomie et de l' Arteriotomie. Paris, 1741, in 12^{mo}. p. 481, et Suiv.

If a pain in the Head occur in a person, who is not plethoric, he should not lose blood either from his arm or his head.

If a pain in the Head be sympathetic, whether the Patient be plethoric or not, he should be bled from the part with which the Head sympathises, or from as near this part as possible. Thus, at the period of the first menstruation, there is often a dreadful Headach which the loss of a few ounces of blood from the neighbourhood of the Uterus will remove, but which the loss of twice that quantity from the Head will not remove. The reason I take to be this : that while the Headach is incipient, or merely sympathetic, there is no such disproportionate circulation, as is unnatural, in the Brain : but a change is taking place in its vessels for a disproportionate circulation. This is a most momentous time for females : for if the state of the Uterus, upon which the Headach depends, be not removed in a day or two at farthest, Epilepsy, Apoplexy, or Insanity may ensue. The same may be said of that Headach, which supervenes to a suppression of the Menses. Perhaps, in all such cases, after having drawn blood from the neighbourhood of the Uterus, leeches should be applied to the temples, or cupping glasses to the occiput, with deep scarifications there ; it being generally uncertain when the brain may begin to be compressed and irritated. Indeed in all chronic affections of the Head, in low obscure inflammations or congestions, and in all cases in which Epilepsy, Apoplexy, or Palsy is to be dreaded, many are of opinion that the jugular vein should

be opened. I cannot speak from experience on this subject: but if a jugular vein be to be opened, I would rather that blood were taken from the internal than the external. Morgagni says, we cannot come at these veins in order to open them:* but their inferior part being covered by the Sterno-cleido-mastoid muscle, the platysma myoides, and integuments only, if these be divided on either side the internal jugular may be seen, and may certainly be opened with a lancet, without wounding either the carotid artery, which runs close to it, or the eighth pair of nerves.

As to the quantity of blood taken away by leeches, or by cupping glasses, it should never be so great as to induce fainting. Fainting is never to be induced in Headach. It is not to diminish the quantity of blood in the Head that we apply leeches, but to produce a contraction of distended vessels, and so to restore the natural distribution and circulation of the blood through the brain. An ounce of blood, and sometimes less, from the scalp often removes a Headach, as from the nearest skin it does a pain in the thorax, or abdomen.

Some are afraid to bleed in Headach, during menstruation, or the flow of the lochia: but I have often known both these discharges promoted by it, and the Headach cease in proportion as the pulse became more developed, and the patient freer from weariness and oppression.

Whether there be any advantage in taking blood from the opposite side of the Head to that in pain, I know not. Hippocrates seems to have

* De Sedibus et Causis Morbor, &c. Epist. xi. § 10.

thought so,* as does also Coelius Aurelianus : but, perhaps, if leeches to the temples do not answer, cupping of the occiput with deep scarifications may answer : and when the pain extends down the spine, leeches should be applied to it.

Many are of opinion that, if the cause of the predisposition to a Headach be in the membranes of the brain, it is better to apply leeches, cupping, and wounding the blood-vessels in the mucous membrane of the nostrils ; and that if the cause of the predisposition be in the brain, it is better to open the temporal artery.

PURGING.

Purging is another mode of bringing about a contraction of the dilated vessels, and of removing the disproportionate circulation of blood through the brain. It is in vain that the attempt is made to cure a Headach, if the bowels be loaded with indurated faeces, and if the secretions into them be suspended, diminished, or vitiated. Purging always gives strength to those, who live too fast, if I may say so. But, I think, I have known a Headach cured by restoring the secretions into the bowels, by Hydrargyri Submurias, and brought back by a continuance of it.†

In a protracted Headach, more especially during pregnancy, I am not satisfied with mere blood-letting and purging : for having ascertained, that purging may be continued a long time, and

* Aph. Sect. v. Aph. 68.

† Morgagni de Sedibus et Causis Morbor, &c. Epist. xxxi. § 9.

yet a coacervation of faeces be retained in the rectum, whenever I suspect it, however a patient may have been purged, I prescribe accordingly. I cannot recollect, that I have either heard or read of the manner in which a coacervation in the rectum is formed : and yet, it appears to me that, if this were generally known, the presence of a coacervation would be more frequently suspected. I had long remarked, that women are more subject to costiveness than men ; the Peruvian Bark generally rendered them costive ; that they require stronger purgatives than men ; that the least Diarrhœa is instantly checked by them with absorbents, astringents, or opium, after which they almost always become obstinately costive ; that for a variety of reasons, which I purposely pass over, they do not retire to the *gardé robe* as often as they feel the inclination to do it ; &c. I speak of this coacervation of faeces in women especially, because in them, it is on many occasions, of more consequence than in men : but men also are subject to it. I had, however, remarked the facts I have mentioned, as to women, and had made many inquiries suggested by those facts, before it came into my mind how the coacervation takes place : thus I learned beside, that if faeces be not evacuated on going to bed, when there is an inclination, they are not evacuated the next morning, or they are evacuated in an indurated state, and not without the assistance of the abdominal muscles, or that fluid faeces only are evacuated, without the rectum seeming to be emptied, a sensation of weight and irritation approaching to tenesmus remaining for a

longer or shorter time afterwards, and sometimes returning after short remissions. Well: remembering the relative capacity of the rectum, as well as the degree of distention, of which it is susceptible, and reflecting on the appearances of such portions of indurated faeces as I had seen taken from the rectum, after long purging, and which had no resemblance to scybala, I reasoned in this manner: if the faeces, which should be discharged to night, be retained till to morrow, and then only fluid faeces be discharged, the former must be still retained: but it can be retained by consequence only of an absorption of its fluid part, which must have left it indurated, firmly attached, and even moulded, as it were, to the internal surface of the rectum, somewhat as the coagulum is to the inside of an aneurismal sac; and the latter or fluid faeces must have passed through it. But the mucous follicles, *glandulæ solitariae*, must be obstructed by the layer of indurated faeces so attached to the intestines: and every subsequent omission to evacuate the rectum, may be followed by another layer of indurated faeces; so that although fluid faeces may afterwards flow at times from the rectum, yet this intestine, so defended by the layer of indurated faeces, and perhaps by many layers, can no longer feel any other stimulus than that of distention, every evacuation of it depending upon a *vis á tergo* in its axis only.

With this notion of the formation of a coacervation of faeces in the rectum, I could no longer rely on pills and purging draughts for its removal: and I became awakened to the danger of neg-

lecting it. I now, as soon as I suspect it, order an ounce of soft soap dissolved in a pint only of water, to be slowly injected into the rectum, and am not at all anxious, if it remain there an hour. When it comes away, it generally brings with it portions of faeces, which have long been retained. This is the manner in which I begin to remove a coacervation of faeces in the rectum.

The introduction of the finger above the sphincter muscle, or of a candle, may afterwards be necessary.*

VOMITING.

Vomiting I have known to remove a Headach, a Cephalalgia, not a Cephalaea; and perhaps there is no more certain way of equalizing the balance of the circulation, of promoting perspiration, and of awaking all torpid secretions. But in the Headachs of old persons, vomiting is certainly dangerous, because of the brittleness of the blood vessels; so that I would never order an emetic for them, unless blood-letting had been premised; nor then, unless I thought the stomach to be overloaded.

I have already spoken of vomiting in concussion of the brain. Sauvages supposes that an emetic cures a Headach, by dispersing blood inspissated, and stuffing up the vessels in the membranes of the brain. Perhaps sneezing cures it in the same way: for subcarbonate of ammonia,

* Medical Observations and Inquiries, &c. Vol. iv. Page 123.

snuff, &c. are generally tried by those, who have a Headach.*

Sickness lowers the pulse, brings on a sweat of debility, and often aggravates a Headach.

PEDILUVIUM.

The pediluvium is most efficacious after bleeding; it should be hot enough to redden the skin; and it should be employed for half or three quarters of an hour. After leeches to the part in pain, a pediluvium in hemicrania is an excellent remedy. The circulation in the veins is accelerated, if the temperature of the pediluvium be above 100° of Far.; and I have never known a pediluvium of the temperature of 96° produce any relief in a Headach, unless it were sympathetic of some inflammatory affection. If the temperature of a pediluvium do not exceed 60°, it does not accelerate the circulation, according to Dr. F. Home.

DRINKING OF HOT WATER.

A Lady once assured Dr. Darwin, that when her Headach was coming on, she drank three pints of hot water as hastily as she could, which prevented the progress of the disease:† and I do not question the Lady's veracity; for warm water, when taken into the stomach of a healthy person, produces giddiness, and when applied to

* But see Morgagni de Sedibus et Causis Morbor, &c. Epist. xiv. §. 26. &c.

† Zoonomia. Vol. ii. page 497.

the lower extremities, increases the action of the cerebral arteries.* But of Dr. Sangrado's Boissons copieuses de l'eau chaud, as a remedy for Headach, I have no experience.

HOT OR COLD WATER ON THE HEAD.

Cold water poured upon the Head by a shower bath, or applied to it by means of a concave sponge, must constrict the vessels of the Head; and I have often known it efficacious: but I cannot say, that hot water, used so, has in my practice been so successful.

I have often seen the Head, during a Headach, in a profuse sweat; and have as often thought of that aphorism of Hippocrates, in which a sweat upon any part of the body, is said to be the sign of a disease within.† The Headach, according to my observation, was always relieved by it, and the paroxysm was sometimes entirely removed by it. Morgagni gave the decoction of the woods to a person who had a violent Hemicrania, which was certainly hereditary; and when a sweat broke out, the Hemicrania abated. Ballonius, Morgagni says, had found the same method successful.‡ In Monsieur Robson's case of Headach, a sweat of the Head broke out, as soon as the moxa began to burn the skin, and then the Headach abated.§ Whether the sweat break

* Saunders's Treatise on the Structure, Economy, and Diseases of the Liver. Edit. iii, page 173.

† Aphor. Sect. iv. 38.

‡ De Sedibus et Causis Morbor. Epist. i.

§ Journal de Med. Tome xxx. page 107, &.

out oftener in Cephalalgia or in Cephalaea, I have not been able to ascertain : but I have excited it by means of Decoct. Sarsap. Comp. in Headachs of long standing, which were traced to an accident, a blow on the Head ; and with great success. I considered these Headachs as cases of Cephalalgia ; and that inflammation, perhaps of the vasa vasorum of organized lymph, was supervening, so that I ordered a dozen or more leeches to be laid on the scalp, and the punctures to be fomented with warm water, as long as any blood flowed from them, before the decoction was given. In a child that had the measles in my neighbourhood, a prodigious sweat broke out, and continued on its chest, and large quantities of nitrate of potass were given it ; but it died. In a man, who had a prodigious sweat on his chest and head, and whose respiration seemed to be carried on by his diaphragm only, although he was permitted to drink wine and water, because he had no cough and no pain in his side, I concluded that his lungs were inflamed, and ordered venesection, which immediately relieved him, and he is now alive and well.* Where there is a perspiration greater than natural of the Head, there a suppression of it has been found to excite insanity : the affusion of cold water on the Head, must, therefore, be dangerous, if there be a sweat of it ; and more especially if the sweat be an accedent to Headach.

* Une Sueur partielle chaude fait souvent connoître la souffrance de la partie sur laquelle elle se trouve : elle se remarque dans quelques Inflammations latentes de Poitrine : c'est un mauvais Signe. Semeiotique, &c. par A. I. Landré-Beauvais. §. 1083.

COMPRESSION.

Quidam etiam id (sc. Caput) devinciunt, says Celsus: and nothing is more common than to see a handkerchief bound tightly round the Head of one who has a Headach. When it relieves a Headach, it must be, I should think, by determining more blood to the inside of the cranium, and by so increasing the momentum of the blood in the internal carotid artery, as to bring about a contraction of dilated vessels.

C. OF THE CAROTID ARTERIES.

This is sometimes effectual in relieving a Headach: but then only, I suspect, when the Headach occurs in a plethoric habit, in which the general plethora seems to keep it up, I do not believe it relieves a Headach by preventing the rush of blood into the head, but by preventing the pressure of the brain.

CUCUPHA.

Bonnet odoriferant, ou Cephalique. An odoriferous cap for the head. I have known a silk cap, containing lavender, rosemary, &c. in powder, applied to the head, but I have never known the head freed from a pain by it.

CUTTING OFF THE HAIR.

This too is mentioned by Celsus; but see what I have already said of it.

BLISTERS.

Blisters, Issues, Setons, and Tartar emetic Ointment rubbed into the scalp, bring blood to the surface, and lessen the irritation within : but, I do not think they cure a Headach in this way ; but by exciting the dilated vessels to contract. As a remedy for the Headach of fevers, a blister to each temple, behind each ear, to the nape of the neck, to the head, between the shoulders, or down the back, is known to persons even out of the profession.

OLEUM SUCCINI.

Friction of the spine with this oil is said to have cured a Headach.

TREPAN.

Willis tells us, that Harvey once proposed this to a Lady, who had an inveterate Headach ; but that nobody could be found, who would apply it, although the Lady was promised a cure by it.

INUSTION, MOXA.

The same may perhaps be said of Inustion and of Moxa, as of Blisters ; but I never knew Inustion employed in Headach ; and am not encouraged to prescribe it by what Willis and De Haen have said of it.

INTERNAL REMEDIES—TONICS.

Cinchona, Sulphate of Quinina. These are certainly powerful remedies for Headachs, especially for such as are periodical.

ANTISPASMODICS.

Opium, Aether, Assafoetida, Valerian, Camphor, and Camphor with Extractum Hyoscyami. These quiet nervous irritations attending Headach, and sometimes Headach itself.

TIGLII OLEUM.

A drop or two of this oil on the tongue is said to have cured Tic douloureux.

Such are the means commonly had recourse to for the cure of Headach; and I have not thought it necessary to point out such of them as are exclusively applicable to either Cephalalgia or to Cephalaea. I proceed, however, to consider, briefly, what is to be done in cases of Cephalaea.

Dr. Home says, “in the cure of this disease (Headach) we have little or no power over ossifications, effusions, or ulcerations;” he means in Cephalaea: but “in congestions or nervous affections, we may be of some assistance,” he means in Cephalalgia.*

* Clinical Experiments, Histories, and Dissections, by Francis Home, M.D. one of His Majesty's Physicians, and Professor of Materia Medica in the University of Edinburgh. Edit. iii. page 155.

Now, it appears to me, that the frequent disappointment in the cure of Headachs, does not depend so much upon our having little or no power over ossifications, effusions, or ulcerations, as upon the neglect to distinguish the early signs of Cephalaea from those of Cephalalgia, before the cure is begun. For he, who has ascertained that a Headach is a Cephalaea, cannot entertain much hope of curing it, and will be cautious in giving any. Perhaps he will say no more than that such a Headach has been cured (whether by nature rather than by art, is of no moment), and that he will endeavour to cure it. But who ever looks over that enumeration, which I have made, of the remedies employed in Cephalalgia, must see that some of them cannot prevent the cause of the predisposition to Cephalaea from increasing, and that others may hasten its increase. And it may, I think, be laid down as a maxim, that such powerful means as are often proper and effectual in Cephalalgia, are improper and dangerous in Cephalaea, because in the former there is mere morbid action, but in the latter disorganization from a specific action. I have more than once suggested, that Cephalaea, and cerebral apoplexy have some symptoms in common

As to ossifications within the cranium, it does not follow that, when they are the cause of the predisposition to a Headach, that Headach is a Cephalaea. True it is, that a long-continued pain in the Head, sometimes delirium, sometimes convulsions, and sometimes coma or apoplexy have been known in those, in whose brain

or in the membranes of whose brain solid or encysted tumours were forming : but when such tumours have ceased to increase, it is probable, they no longer predispose to pain, the pain having depended upon their growth and increase being faster than room was made for them within the cranium, so that then by compressing the brain directly, they compress indirectly the tuberculum annulare or the medulla oblongata. But ossifications have been found within the skull of those, who never had a pain in the Head. And again, when tumours are deep in the brain, and have excited the adhesive inflammation, by which they have become enclosed in a cyst, they have predisposed to no pain, but have lain quiet and innocuous, as the leaden bullet did for thirty years in a Nobleman's thigh.* It should never be forgotten, therefore, that the cause of the predisposition to Cephalaea, increases in the intervals of the paroxysms, so that every succeeding paroxysm exceeds in violence the preceding paroxysm.

As to blood or water effused within the cranium, the former from apoplexies or from accidents, Sir Astley Cooper thinks, is never absorbed ; but the brain gradually acquiring the power of bearing its pressure, the symptoms produced at the first moments of general extravasation gradually diminish. Nor have I yet learnt, that effusions or extravasations, when

* Morgagni de Sedibus et Causis Morbor, &c. Epist. xxvii. §. 28.

Hunter on the Blood, &c. page 238.

the symptoms of compression and irritation had once ceased, ever left behind them the predisposition to Headach.

Lacerations of the brain, healed by the adhesive process, cannot be supposed to give always the predisposition to Headach : and if they and thickened membranes ever do it, I am not certain, that it is in our power to put a stop to their doing so ; much, I know, may be done by avoiding the occasions of Headach, and by diminishing their effects by bloodletting, purging, &c. but if coagulated lymph have become organized, which it does very quickly, mercury can, I conceive, have no other power over it than that of loosening its texture. This is, I conceive, what it does in curing mesenteric obstructions : it removes solid matter deposited in the mesenteric glands, and so renders them permeable to the chyle. Perhaps the obstruction in the mesenteric glands, and the enlargement of them depend on inflammation communicated to them from the mucous membrane of the intestines. But can mercury given internally have any power over scrophulous tumours in the brain ? can it remove a scrophulous *Exostosis* from the cranium ? I know it can remove a venereal *Exostosis* or node, and also venereal Excrescences, *Fici*, *Mori*, &c. but in all cases, scrophulous or venereal, where there is great weakness, and the restorative powers of the constitution are impaired, I would not excite the action of the extreme arteries by mercury. That a Headach has depended upon a predisposition induced, by the venereal disease, and which predisposition was removed by the

use of mercury, I have no doubt : but I have no doubt, that depositions under the parietum, resembling nodes, and morbid affections of membranes are sometimes induced by mercury, and dispose to Headach.

As to an effusion of water within the cranium, if there have been the signs of acute Hydrocephalus, it is probably the consequence of Headach : but if there have been neither the signs of Hydrocephalus, or of Arachnitis, nor distended sutures, the effusion of water is probably not a morbid phaenomenon. I believe, that less than two or three ounces of water in the ventricles of the brain, (and more is seldom found after the acute Hydrocephalus), are not a morbid phaenomenon, unless the signs of acute Hydrocephalus have preceded death.*

As to ulcerations within the cranium, I suspect that they are generally connected with the disposition to some specific disease, which is of

* March 31, 1825, *p. m.* I was sent for to one of the most exquisitely formed Infants I ever saw, who, I was told, had for several days laboured under that difficulty of breathing, which I then saw, and from which I could not hesitate to predict, that he had a few hours only to live. For as the symptoms were those, which are produced by an inflammation of the lungs, during which a large quantity of coagulable lymph is extravasated, so I could not doubt that such inflammation had preceded it.

His breathing was extremely short, rapid, and painful, performed not by his intercostal muscles, but by his diaphragm and abdominal muscles ; so that, when he endeavoured to inspire, he stretched out his arms, raised his shoulders, &c.

His pulse was small, weak, and scarcely perceptible, because he could not make a full inspiration ; so that the right side of his heart, and his whole venous system, were being overloaded

very difficult cure, even when it attacks an external part of the body. If a person have had Scrophula, when young, a Headach with affec-

with blood, while the left side of his heart, and his whole arterial system, were being emptied of it.

His breath was cold, because less blood was conveyed to his brain by the internal carotid and vertebral arteries: and because the mucous membrane of his lungs no longer served for the decarbonization of his blood. Cold breath is universally known to be a fatal sign in inflammation of the lungs.

His skin was cold, which it has long been noticed to be, when there is venous congestion in the head.

The child had not been bled: but Huxham says, “ if any thing can be done in inflammation of the lungs, it is by early and immediate bleeding, or it becomes, in very few hours, utterly irrecoverable”; because, as he states in another place, the lungs become “ stuffed up with concremented blood, red, hard, and as it were fleshy, or rather of the colour and consistence of liver.” Cullen says, this is the common termination of pneumonic inflammation, when it ends fatally: and Baillie and Laennec are also of opinion, that carnification or hepatisation of the lungs depends upon inflammation.

April 2. The child died in the morning between 9 and 10 o'clock, breathing, as he had done throughout, as if his larynx were clogged with phlegm.

But I was asked in the morning of April 1, whether such respiration might not be occasioned by water collected in the head? To which question, as the person who put it to me had no pretensions to medical literature, I thought it sufficient to reply, that such a disorder of respiration could arise from no other cause than an obstruction to the passage of the blood through the lungs, which obstruction was the consequence of inflammation. I was, however, requested to attend the dissection of the child, between 8 and 9 o'clock of the day on which he had died, no doubt, that I might see the collection of water, as little diminished as possible by absorption.

I attended the dissection, and resolved not to interfere with it, but to be a mere spectator.

tions of particular nerves, every paroxysm increasing in violence, may suggest scrophulous action going on in the brain, or in its membranes :

The thorax as it happened was first opened.

Healthy lungs subside as soon as the knife has penetrated the thorax ; as a bladder half filled with air, but distended by it in a vacuum, does on the admission of the atmosphere ; but the child's lungs did not subside when fully exposed.

There was no sign of inflammation, either present, or past, in the *pleura pulmonalis* or the *pleura costalis* ; nor had any been suspected to be there.

The superior lobes of the lungs were severally grasped in the hand and compressed, but were not diminished by the compression ; no blood was pressed out of them ; neither was any crackling noise produced by the compression : but after the most complete expiration, the quantity of air remaining in an adult's lungs, if they be healthy, is equal to perhaps 109 cubic inches.

The superior lobes of the lungs, viewed through the diaphanous *pleura*, were of the colour of muscle, or rather of liver : and when an incision was made into them, there was no appearance of cells.

The inferior lobe of the left lung, on its surface in contact with the diaphragm, was inflamed ; which was probably the reason that, when, April 1, I pressed upwards from under the child's ribs, he coughed tremendously, his face was deeply suffused, and his larynx seemed to be clogged with a tenacious mucous. The lobe of the lungs was certainly inflamed, for it was of a florid colour, and of a firmer consistence than in health. It was not of a dark colour, as blood sunk into it by gravitation after death would have rendered it. Besides, had its colour depended upon blood accumulated there by gravitation after death, it should have been on the posterior part only of the lobe, and also on the posterior part of all the lobes, as the child had for several hours been placed upon its back.

The trunk of the Trachea was repeatedly and forcibly compressed between the finger and thumb, from the division

and if a person have fungus haematodes in any part of his body, as a testis, a constant pain in his Head, &c. may suggest, that fungus haematodes is also going on within his cranium. But

of the bronchia upwards to the thyroid gland ; as I have often seen a leech *plena cruoris* freed from its blood.

The larynx was not opened : but as soon as the head was raised, so that it fell forwards, a portion of tenacious mucous, which had been squeezed up from the *trachea* through the *glottis*, ran out of the mouth, which was full of it.

By this examination, I thought my diagnosis confirmed, that the child had died, because he could no longer inspire ; his lungs no longer serving for the transmission of blood from the right to the left side of his heart.

But the head was to be opened, and as it should seem, more water than usual was to be detected in it ; as if such a disorder of respiration, as the child had had, could have depended upon a collection of water in his head.

Now it must occur to every one, that, if a collection of water in the head produces, at all times, a difficulty of breathing, a difficulty of breathing must always be a symptom of serous apoplexy, and of hydrocephalus, whether acute or chronic. But of serous apoplexy, according to Tissot, it is not a symptom ; and in perhaps the best book ever written on the acute hydrocephalus, we are told that “ respiration is “ natural in the third stage or period of effusion ;” and in the chronic hydrocephalus, when the head was enormously enlarged, as it may well be supposed to have been, for it contained nearly nine pints of water, the little girl two years old, who was the subject of it, is said by Vesalius, to have had no difficulty of respiration, except when her head was raised ; nor then such a difficulty of respiration as the child in question had. Vesalius says only “ *difficilis respiratio*.” but, if the little girl’s respiration had in any respect resembled that from inflammation of the lungs, would Vesalius not have noticed it? Besides, the little girl’s respiration was only then difficult, when her head was raised : but the little boy’s respiration was disordered as much when he was lying horizontally, as when he was sitting up in his mother’s lap.

in every case of Cephalaea, it is, I believe, a good rule to diminish the specific action, if this be possible; at least not to increase it. By strictly

The little boy's head however was to be opened; and before it was opened, the anterior fontanel, which in his lifetime had been level with the bones forming it, was now found to be sunk inwards; a proof that the bones of the skull had not been forced assunder by a collection of water within it.

The anfractuosities (*anfractus, sulci*) of his brain were not at all diminished; neither were the circumvolutions (*gyri*); a proof that his brain had not been distended by a redundancy of water in its ventricles.

There was no sign of present or of past inflammation in the membranes of the brain, but there was great congestion in the vessels of the *pia mater*. There was a certain quantity of water in the cells of the *pia mater*, which was visible through the *tunica anachnoides*, and appeared like a jelly, upon the surface of the brain, and the ventricles contained more.

There was no sign of increased vascularity in any portion of the brain, or cerebellum, or medulla oblongata, or nerves originating in this. No bloody points appeared in them, when they were cut.

Now, having shown, that an unusual quantity of water in the head does not much disorder respiration, it may be inquired whether the quantity discovered in the little boy's head, (as he had had no Sopor, no fits of vomiting, no convulsions, no dilatation of the pupils, no paralysis, no wasting of the body,) was really a morbid phaenomenon? In one of the latest books on anatomy, perhaps in the very latest (Shaw's Manuel of Anatomy), a certain proportion of water in the ventricles of the brain, at its base, and in the *theca vertebralis*, is said to be not a morbid phaenomenon; so true it is, that appearances, which some, who are searching for morbid appearances, boldly pronounce morbid, others more versed in morbid anatomy, and having no opinion to support, consider as healthy.

I might have noticed sooner, that, although the child had not been bled, yet that *Emplastrum Ladani* had been applied

observing this rule, if we do not cure the disease, we favour the return of the natural action of the part which is its seat.

to his chest; and that it remained there, when I was called to it. But, supposing water in the head to have been the cause of the child's disordered breathing, what could then have been expected from *Emplastrum Ladani* applied to his chest?

THE END.

ROCHESTER:

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CORRIGENDA.

Page.

- 5, line 2 after *occasions*, put a colon.
- 12, -- the last of the notes, for p. 3, put 53.
- 13, -- 4 of the notes, begin the article *the* with a capital.
- 16, -- 16 for ? put :
17 for *but*, read *and*.
- 17, -- 3 of the note for *continentur*, read *continenter*.
- 28, -- 3 of the notes for *plusieres*, read *plusieurs*.
- 31, -- 4 from the bottom, for *internal* read *external*.
- 41, -- 25 *dele* from.
- 42, -- 6 from the bottom for *Lomminus*, read *Lommius*.
- 46, -- 4 for *medium* read *median*.
- 54, -- 24 for *Exostisis* read *Exostosis*.
- 66, -- 2 of the note, for *Le panser*, read *de penser*.
- 67, -- 5 omit the *m*, in *contramhitur*.
- 68, -- 5 of the note, for $\nu\delta\omega\delta$ read $\nu\delta\omega\rho$
- 71, -- 6 of the notes, for *vide*, read *vitaë*.
- 88, -- 3 of the notes, for *Gemitus* read *Gemitu*.
- 89, -- 12 for *Hysterica*, read *Hysteria*.
29 for *Tulpins*, read *Tulpius*.
- 93, -- 2 of the note, for *dependant*, read *dependent*.
- 98, -- 9 of the note, for *Perniciam*, read *Perniciem*.
- 110, -- 34 for *melanchotic*, read *melancholic*.
- 112, -- 2 of the notes, from the bottom, for *Elamenta*, read *Elementa*.
- 113, -- 13 for *lympathetic*, read *lymphatic*.
- 134, -- 1 of the notes, for *Ssribere*, read *Scribere*.
4 of the notes, for *viii*, read *vii*.
- 139, -- 17 for *immaterialty*, read *immateriality*.
- 144, -- 5 of the notes, for *iusane*, read *insane*.
- 149, -- 26 after *in Health*, read *is said*.
- 150, -- 2 for *tetinus*, read *Tetanus*.
- 156, -- 15 put the article *a*, before *bitter*.
- 157, -- 19 for *Effusion*, read *Affusion*.
20 for *to*, put *on*.
- 168, -- 2 of the notes, for *ub*, read *ab*.
- 176, -- 19 for *chrysippus*, read *Chrysippus*.
- 194, -- 24 after the word *Cure*, add *of a Fit*.
- 218, -- 9 of the notes, for *provocioribus*, read *provectionibus*.
- 232, -- 26 after *Uterus*, add *if the Headach continue and increase*.
- 235, -- 10 for *the*, read *that*.



